Issue 045 May 2009

ALIENS AND MONSTERS

FRANKENSTEIN'S MONSTER
Rafael Grassetti wraps up our ZBrush Character Creation tutorial series in this concluding chapter, where he sculpts the king of all horror movie monsters: **Frankenstein's Monster!**
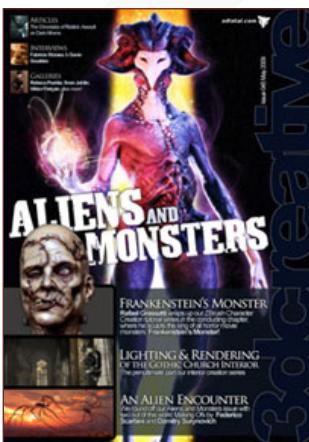
LIGHTING & RENDERING
OF THE GOTHIC CHURCH INTERIOR
The penultimate part our interior creation series for 3ds Max, Maya, Cinema 4D, LightWave and modo

AN ALIEN ENCOUNTER
We round off our Aliens and Monsters issue with two out of this world Making Ofs by **Federico Scarbini** and **Dzmitry Surynovich**

3dcreative

Editorial

Welcome to Issue 45, where aliens and monsters rule the roost this month! So what's this all about? Well, we bring to you in this issue the concluding chapter of our ZBrush Character Creation tutorial series, in which the super talented **Rafael Grassetti** shows us how to tackle the sculpting and texturing of a beautifully freakish monster of Frankenstein. Check out P.55 for Rafael's tutorial, and stay tuned for next month's issue where we'll be beginning a tutorial series on sculpting and texturing "Manimals" (a cross breed of a man with an animal – get it?), with **Bruno Melo** kicking off the first chapter. So what about aliens, I hear you ask? We welcome **Federico Scarbini** to 3DCreative this month with a fantastic making of detailing the creation of his recent character piece, *Zenoth, the alien from Jupiter* (P.63), and as a double-alien-whammy, we also asked **Dzmitry Surynovich** to bring us a project overview article on his alien scene, *Morass* (P.71). And just because we love all things rather weird and wonderful here at 3DCreative, you'll also find some fantastic ZBrush cyclops characters in the Speed Sculpting tutorial section of the magazine this month, in which **Gavin Goulden** and **Jesse Sandifer** bring us their interpretations on this classic topic (P.43).

Our interviews this month feature the winner of the recent *Steampunk Myths and Legends CGChallenge*, **Fabricio Moraes**. We've been working with Fabricio recently on our latest Digital Art Masters volume, and we're constantly blown away by the quality of his work, so we just couldn't help ourselves wanting to get to know him a little better in one of our artist interviews (P.7). Our second interview this month is with an old friend of 3DCreative, **Gavin Goulden**, who will be back with us as a regular artist in our upcoming Next Gen Character Creation tutorial series (starting in July!), so we thought we'd catch up with him, find out what he's been up to, and force him to spend just a few reluctant moments away from devotion to his Dominance War IV entry. Check out P.17 and then join us again in July for the start of our Next Gen series where Gavin will … be … back! (We're very excited about the Next Gen series – can you tell? It's going to be grrreat!)

We've reached Part 4 (of 5) of the Gothic Church tutorial series this month (P.85), where we bid farewell to the wonderful artists who we've come to know and love (even more so) over the last few months as they've taken us through the modelling, texturing and lighting of a creepy church interior scene. As sad as we are to see **Luciano Iurino** (3ds Max), **Niki Bartucci** (Cinema 4D), **Roman Kessler** (LightWave), **Tiong-seah Yap** (Maya) and **Robert Bergh** (modo) leave us with their final chapters this month, we're also very excited about the final instalment of the series, in which we invite the talented **Zoltan Korcsok** to do the post-production work on the final renders. So, lots of excitement planned for next month – be sure to check back in with us in June to see the series' conclusion.

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Our gallery features some real delights this month: **Rebeca Puebla** brings us her latest stunning character, *Twisted Dolls: Mistress Lili*; **Sven Juhlin** shares with us his stylised *Sgt. Johnson*; and **Viktor Fretyán** – who will be back in next month's issue in one of our artist interviews – kindly shows us his latest architectural piece, *Tadao Ando - Row House, Azuma*. All this and so much more in this month's gallery – check it out on P.33.

Enjoy! ED.

Get the most out of your Magazine!

If you're having problems viewing the double-page spreads that we feature in this magazine, follow this handy little guide on how to set up your PDF reader!

Setting up your PDF reader

For optimum viewing of the magazine, it is recommended that you have the latest Acrobat Reader installed. You can download it for free, here: **DOWNLOAD!**
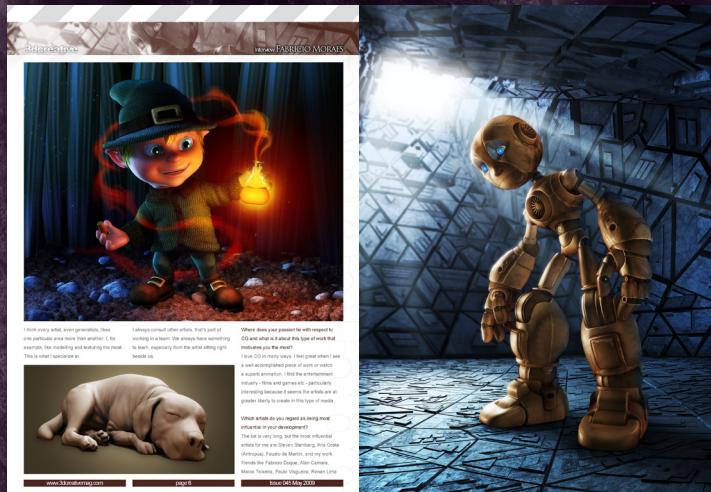
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1. Open the magazine in Reader;
2. Go to the VIEW menu, then PAGE DISPLAY;
3. Select TWO-UP CONTINUOUS, making sure that SHOW COVER PAGE is also selected.
That's it!

CONTRIBUTING ARTISTS

Every month many artists from around the world contribute to 3DCreative magazine. Here you can read all about them. If you would like to be a part of 3DCreative or 2DArtist magazines, please contact: lynette@3dtotal.com

Gothic Church
Interior Creation

This tutorial series has seen some familiar faces return to tackle our latest subject. Using Richard Tilbury's concept sketch, our artists create a Gothic Church Interior for 3d Studio Max, Cinema 4D, LightWave, Maya, and for the first time, modo.

ROMAN KESSLER

A freelance 3D artist in Germany. Since 1997 he's been working with LightWave, at first as a hobby. In 2005 he started working professionally as a freelancer, and began to use Maya in 2008 to work in a film company, although he still prefers LightWave. He loves the variety in his work, and he has a particular passion for the creation of environments.

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LUCIANO IURINO

Started back in 1994 with 3d Studio on MS-Dos as a modeller/texture artist. In 2001 he co-founded PM Studios (an Italian videogame developer) with some friends, and still works for it as the lead 3D artist. He also works as a freelancer for different magazines, web-portals, GFX and videogame companies, and recently left the 3ds Max environment to move on to XSI. http://www.pmstudios.it

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ROBERT BERGH

A few years ago he decided that he wanted to be a 3D game artist, went to a school called Digital Graphics in Stockholm, Sweden, and is now living the dream. You can often find him lurking around various game-art related forums, such as Polycount and GameArtisans, under the alias PixelGoat, sharing his knowledge with the community. http://www.pixelgoat.se

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NIKI BARTUCCI

A freelance 3D modeller in Italy. She started working in the field of computer graphics in 2000 as an illustrator and web designer. In 2003 she started using 3D software, such as Cinema 4D and 3ds Max. In that year she worked on *ETROM - The Astral Essence*, an RPG video game for PC, developed by PM Studios.

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niki@pikoandniki.com

WOULD YOU LIKE TO CONTRIBUTE TO 3DCREATIVE OR 2DARTIST MAGAZINE?

We are always looking for tutorial artists, gallery submissions, potential interviewees, 'making of' writers and more. For more information, please send a link to your portfolio, or examples to: **lynette@3dtotal.com**

Jesse Sandifer

A self-taught digital artist with 8 years experience. He co-owns Green Grass Studios in Dallas, Texas, which works on a variety of projects for films, games, television commercials and in-game arena entertainment. Most of his spare time is spent participating in online challenges, doing personal artwork and dabbling with drawing and traditional sculpting.

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jessesandifer@gmail.com

Rafael Grassetti

A Brazilian artist born in 1988. He decided to study sculpture about three years ago, and when he discovered 3D he became fascinated with it. Since then he's been learning everything he can about art, and is a self-taught artist specialising in 3D modelling, character design, digital sculpting, texturing, and assets for feature film and TV projects.

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Dzmitry Surynovich

Lives in Byelorussia where he works as an architect. For five years he has been engaged to 3D art. It is his hobby. He considers digital art to be open to countless possibilities for the human imagination. Very seldom is he happy with his pictures, but this dissatisfaction helps him to strive to raise his level of knowledge for the next work. He is always aspiring to create something new.

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Federico Scarbini

A self-taught freelance character modeller in Italy. In the past years he's been trying to push his skills studying anatomy, drawing and modelling, focusing on the organic forms and the expressions of the human body. In his sculpting, he mainly models from original concepts; this way he can establish a deeper understanding of the logic behind a character.

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Twisted Dolls: Mistress Lili | Image by Rebeca Puebla

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Fabricio Moraes is a 3D artist and animator who works at Seagulls Fly, a large animation and multimedia studio in Rio de Janeiro. He has recently been awarded first prize in CG Society's Steampunk challenge, in which he created his unique interpretation of the story of Pinocchio.

FABRICIO MORAES

FABRICIO MORAES

ROCKETEER

Can you tell 3DCreative a little about yourself and how you came to be involved in the CG industry?

Since I was young I've always been amazed by movies, special effects and animation. My mind was blown away when I saw *Jurassic Park* and became very curious and interested when I saw *Toy Story*. I kept wondering how they could do such amazing things on a computer.

I started with CG when I was 16, with 3D Studio 4 for DOS. Despite the limitations of the software, I still thought the things that could be done with it were great and so I decided I wanted to study CG further.

Unfortunately, here in Brazil we didn't have any colleges specialising in CG at that time. The closest course was Industrial Design and so I graduated in this instead. However, I did do some other courses alongside college, because even in college there wasn't any special training in this field.

When the colleges lack the necessary training, how easy is it finding a job similar to the one you have now? And will companies readily train applicants on the job?

Working with experienced people was the way I learned the most things. Solving problems day by day forced me to develop new techniques and look for new software. Of course the courses I did in the beginning helped me a lot, especially with the basics, but doing CG eight hours a day in my work and making my personal projects at home was the best course I had.

Despite this, I can't exclude the importance of my college. I didn't exclusively study CG there, but it helped to give me a good visual sense and methodology. Understanding the foundation of drawing, human anatomy and perspective helps you to be a better artist.

Today there are more courses and colleges specialising in CG here in Brazil, and with the growing technology industry it is getting easier to become a qualified artist and find a new job.

You won first prize in CG Society's recent Steampunk challenge. Can you tell us a little about the inspiration behind your idea?
I always wanted to participate in a CG Society challenge, but never imagined I would have a chance of winning. I found this theme very interesting and so decided to give it a try.

When I was trying to come up with an idea, the picture of Pinocchio popped up. He was a well known character, charismatic and I knew he wouldn't be tricky to adapt to the Steampunk ideals because he was already artificial.

Your image is certainly deserving of an award, but which aspects are you most proud of and which proved the most difficult to get right?
I am very satisfied with the final result. When I don't know what to improve, that's when I know that it's time to stop working on an image.

What was most difficult for me was Geppetto. I wanted to show a strong and forced pose with a cartoonish look and this was tricky to achieve. His expression should show a lot of things; he looks mad but not insane.

The light and mood were very important and hard to achieve and everything needed to be in harmony. Balancing all of this was really hard.

You are currently employed at Seagulls Fly Studio in Brazil. Can you describe your role there and the type of work you do on a day to day basis?
Here in Seagulls Fly we don't have a specific role for each artist. We are all generalists. When an illustration for a publicity campaign is assigned to me, I normally take it from the modelling stage to the post processing. If the job is very complex we split it between more artists.

Being a generalist requires you to be versatile, to have a range of skills and knowledge of a number of disciplines, from modelling and texturing through to lighting and rendering. Do you find that each artist in your studio has a flair for particular areas? And do you often consult each other to find the best solutions?
Been a generalist is good for me because it allows me to understand more steps in the production process. Having said that,

I think every artist, even generalists, likes one particular area more than another. I, for example, like modelling and texturing the most. This is what I specialize in.

I always consult other artists, that's part of working in a team. We always have something to learn, especially from the artist sitting right beside us.

Where does your passion lie with respect to CG and what is it about this type of work that motivates you the most?

I love CG in many ways. I feel great when I see a well accomplished piece of work or watch a superb animation. I find the entertainment industry - films and games etc - particularly interesting because it seems the artists are at greater liberty to create in this type of media.

Which artists do you regard as being most influential in your development?

The list is very long, but the most influential artists for me are Steven Stahlberg, Kris Costa (Antropus), Fausto de Martini, and my work friends like Fabricio Duque, Alan Camara, Marco Teixeira, Paulo Visgueiro, Renan Lima

and Gabriel Loque. Thise last six guys taught me a lot about how to become a better artist.

Are there many opportunities in Brazil for people interested in your line of work?
I don't know if there are many, but the good artists I know normally find an opportunity when they look hard for it and have a good portfolio.

Your portfolio shows a variety of different projects, but which have been the most challenging and which were the most enjoyable?
There are four works I like most. Don Quixote was the most challenging because I tried a variety of new things in terms of modelling and shading. Stemnocchio was the most enjoyable because I applied everything I'd learned from Don Quixote. The other two works I like the most are The Mercenary and Rocketeer. They were very fun to make and I like the final result, and as I really want to work with games, I enjoyed learning how to make these jobs work.

What new techniques did you try with Don Quixote and what lessons did you learn while making The Rocketeer and Mercenary?
By the time I made the Don Quixote illustration, I was used to making cartoon characters. Mixing realism with a cartoon style was a new thing to me and I enjoyed it. I also learned to use hair and sculpt in Mudbox, and improved my post production techniques in Photoshop to create that painterly look. I like video games a lot and I'm always amazed at how they manage to achieve such a wonderful level of quality and detail in characters with such a limited poly count. That's what I tried to do with Rocketeer and Mercenary - to learn how to make a good game character.

FABRICIO MORAES

For more work by this artist please visit:
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Or contact them at:
fab.moraes@hotmail.com
Interviewed by: Richard Tilbury

GAVIN GOULDEN

Catching him while he's not busy modelling his entry to this year's Dominance War, Gavin Goulden speaks to us about how he started out in the games business and his dedication to perfecting his trade

"NOT THAT MODELLING IS EASY, BY ANY MEANS, BUT A BAD TEXTURE CAN KILL A GREAT MODEL. SO MANY GOOD CHARACTER MODELS BECOME FLAT BECAUSE OF POOR TEXTURING."

GAVIN GOULDEN

Hi Gavin, it's been a while since you last graced the pages of 3DCreative and boy what a comeback, not only an interview but also a speed sculpt all in one issue! Aren't our readers lucky! Okay let's kick-start this interview. Could you introduce yourself and tell us at what moment in your life you started taking notice of 3D and realised that's what you wanted to do for a career?

Hey! Yeah, it has been a while but I'm glad to be back! My name is Gavin Goulden and I am a character artist working in Vancouver Canada. I have roughly five years of experience in the industry and have worked on a few different titles that span multiple genres, including: *F.E.A.R. 2*, *Dragon Age*, *Damnation*, an

BIG HUGE ART CHALLENGE
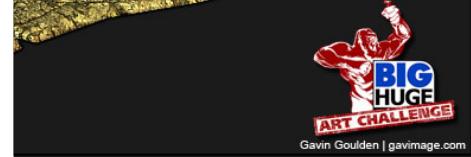
Gavin Goulden | gavimage.com

unannounced RPG from Big Huge Games and the recently announced title *The Bigs 2*.

I have been a gamer for as long as I can remember and as I've also been doing something artistic since I could hold a pencil, I think this career was a natural choice. After high school, I started weighing different career options and game art was the only one that really had me interested. The town I'm from is pretty small and the industry in that area is nonexistent, so getting information on this industry at that time and place was very difficult. I created a portfolio, got into college, became frustrated with college… dropped out and moved to Vancouver (the best career decision I ever made outside of freelancing for a year). From there I continued to work on my portfolio, got a job testing games and eventually worked my way up to the position I am in now.

STREET FIGHTER IV

Gavin Goulden - Adon
www.gavimage.com

So how come you decided to try your hand at freelancing?

Well, the project I was working on before my freelancing stint was cancelled after almost two years of work. Feeling somewhat frustrated, combined with numerous offers to do some freelancing gigs, I decided to take a break from studio life and try out being self employed. Eventually, I went back to a studio as working alone became kind of boring. On top of that, there are a lot of things freelancers need to take care of on their own that sometimes get in the way of actually making art. A lot of my time was spent talking about what I would be doing next, since I wanted to avoid downtime at all costs. Plus, you need to keep track of all your income, where it's going, who owes you what, etc. It was a juggling act.

You've been working in the games industry for a while now and you've worked on some really cool games. Out of them all which one was the most enjoyable to work on and why?

Freelancing gave me many opportunities to work with great companies on various projects. Each one was a different experience and were enjoyable in different ways. An interesting aspect of freelancing, at least in my

experience, was not being married to a project for an extended amount of time and being able to explore different art styles. Bioware has always had a place in my heart from spending countless hours with *Baldur's Gate*… so *Dragon Age* was an honour to create assets for. Big Huge Games has a great project and art style; they were a lot of fun to work with. *F.E.A.R. 2* and *Damnation* were also interesting; both are fun shooters, Monolith is a great company and Blue Omega's *Damnation* is a fun idea. Overall though, working with Garage Games on *Legions* was probably the most enjoyable. A great team, a fun project, lots of creative freedom and easy communication.

So from working for these different companies you must have picked up a few new tricks along the way. Which has been the most beneficial to your current work flow?

Yep! The various companies I worked for all seemed to do things just a little differently and through that I picked up a lot of different tricks. On one of these projects, I actually learned how to properly layer normal maps (adding a fine detail pass to the texture without killing the detail underneath) as I had never really needed to do it before. As simple a thing as it is, it actually opened my mind and made me understand a lot better how they work.

I was also given a lot of opportunities that I normally wouldn't have had as a character artist in a studio. For example, I did some prop work for *F.E.A.R. 2*. Normally, I wouldn't be given this type of task, but because of freelancing I chose

to do it. I learned a lot about their technology, creating nice environment work and enjoyed the break from character work... but only a little.

Lets chat about Dominance War. You've been a participant in this truly remarkable competition for a few years now, so what do you think it is about this competition that draws so many artist to join in and endure countless sleepless nights?

Dominance War gets bigger and bigger every year and I think there are a few reasons why. I would like to think that it is not because of the prizes offered; as great as they might be, the competition should be done for pure enjoyment and as a learning experience. It is a great opportunity for game artists from all over the world, of all skill levels, to push their limits and really walk away with a great piece of work. Not

Model Gavin Goulden   Final Image Garage Games

only does an artist get to produce a high quality character, but they also get to learn many new tips and tricks. Professionals from the industry compete and check in on team mate's threads offering great advice and feedback. I think every artist would rather work on their own project as well and Dominance War gives a great opportunity for that to happen.

So not to get you into too much trouble, what's an average day like during Dominance War?

[Laughs]. Well… it can be pretty hectic. I still work my normal hours at my day job and as soon as I get home and at the weekends it's pretty much all about DW. Luckily, I have a pretty understanding wife.

I find it fairly easy to stay motivated for the Dominance War, even while juggling a regular job, as I see it as more of a fun exercise than a second job. Basically, I get to go home and do whatever I want… even at three in the morning, it's still pretty relaxing. This will be my third time entering the competition; last year I didn't finish as I was freelancing at the time. This added an extra element of difficulty as work and the Dominance War sort of merged into one.

I didn't have that divider in between the two modes and, eventually, I just devoted more time into "work" rather than "play." In the end though, I became a first round judge which was an entirely different experience.

So having been given the chance to judge last year's war, did you get to view all the submission that were entered and if so which was your favourite? Also which one would have won the comedy award (could you describe it for our readers please).

From what I remember we viewed all of the final entries and it was definitely into the hundreds. There were a lot of great characters; clearly everyone

had stepped up their game. My favourite was the one that eventually won, "Imrod" by Dmitry Parkin. Another favourite of mine, which I guess would be considered comedy as it's art style was fairly cartoony and the general nature of it was light hearted, was Josh Singh's entry "Kong Lau". Basically a giant angry monkey with a huge smashing weapon!

Not only are you an amazing modeller, you're a dab hand at texturing too. But out of the two, which do you find the most challenging and why?

Though I do enjoy both, I think texturing is the more difficult of the two. For me, at the end of the day modelling is really just brute force. If you know the basically principles of "how" to model, it's a matter of hammering away at the model until it looks the way you imagined. Texturing, on the other hand, has many different elements involved that need to be taken care of. Proper UVs for maintaining texture resolution, the various different maps involved (normal, spec, diffuse, glow, etc.), having the material seem believable (wood and concrete have totally different properties, for example, and need to be created as such), etc. Not that modelling is easy, by any means, but a bad texture can kill a great model. So many good character models become flat because of poor texturing.

Dominance War II - "Thrull"

So has this come to you naturally, or has it been something you've worked on over the years to nail down?

It definitely hasn't come naturally to me. I think a lot of other 3D artists would echo the feeling that the main "trick" to becoming a better artist is to just practice. Pushing your limits every time. It takes years to perfect your trade - I'm still learning every day - and eventually things will begin to click in your mind. I actually think that this is one of the main things that holds a lot of artists back, this hesitation to just "do it." Dive into ZBrush and just start sculpting; it may not look great at first, but you'll learn something and that will make every model after that better. Lots of trial and error, that's for sure!

Well it has been a really pleasure chatting with you and I wish you all the best for Dominance War. One last question before we call it a day. If you were given a brief to create a low poly

character of yourself (with full rein to exaggerate anything to fit your personality), which would then be imported into a quake or unreal game, what would it be like?

[Laughs]. Well, the legs and arms would need to have unique textures for each limb. I have lots of tattoos on my arm and leg, so the non-tattooed limbs would need their own texture space as well. This would affect my texture resolution, as I would have to devote more UV space to something that is frequently overlapping on other characters. Had I known I would be making myself for a game, I might have held off for a few years!

GAVIN GOULDEN

"..., WHEN YOU JUDGE A SITUATION YOU THINK TO YOURSELF; "IS THIS WHAT RIDDICK WOULD HAVE DONE IN THIS SITUATION...?"

We caught up with guys from Starbreeze Studios about the latest game *The Chronicles of Riddick: Assualt on Dark Athena.*

THE CHRONICLES OF
RIDDICK
ASSAULT ON DARK ATHENA

THE CHRONICLES OF
RIDDICK
ASSAULT ON DARK ATHENA

The latest chapter in the media-spanning The Chronicles of Riddick series, *Assault on Dark Athena* is a direct sequel to the popular 2004 video game, *Escape from Butcher Bay*. Picking up where the previous game left off, *Assault on Dark Athena* explores what happens to Riddick when he runs afoul of mercenary vessel *The Dark Athena* after his escape from Butcher Bay prison. The game was produced by Starbreeze Studios, in conjunction with Tigon Studios, and published by Atari for Xbox 360, PS3 and PC.

We recently caught up with three of the guys from Starbreeze Studios who were at the centre of the action: Mattias Snygg (Art Director), Samuel Ranta-Eskola (Producer) and Henrik Håkansson (Lead Animator) to find out more about their experiences of working on the project.

Hi Henrik - could you introduce yourself to our readers and tell us a little bit about your role as lead animator at Starbreeze Studios?

Henrik: I started in the business about ten years ago as a 3D artist. For the last 6-7 years, I've been working in animation full time. I learned animation through working, and my mentor, Eckhardt Milz, a lead animator at the time, gave me a really good base to start from.

From a working angle, I give the animators a lot of freedom. I hand out assignments and ask for their feedback. The final result is more or less up to the single animator, and whoever he/ she needs to work with - AI coder, 3D modeller, AD, audio dept, writer etc… That's the way I want to work myself – to have a lot of responsibility and a lot of input with the final results.

You hear mention of ZBrush becoming more and more popular with modellers in the games industry today, but you don't hear as much about what the other members of the team use. So on that note, which program(s) where pivotal in your role as lead animator on Riddick?

Henrik: We use Autodesk MotionBuilder almost exclusively

throughout our pipeline. It's the best software when using huge amounts of data, and especially motion capture. For things that doesn't fit the regular pipeline, we used Autodesk Maya.

We can't do this interview without talking about Vin Diesel. Not only is he the star of the game, but he's also founder of Tigon Studios. Did you have much interaction with him and what role did he play in the development of the game (apart from lending his vocal talents)?
Henrik: Personally I didn't have any contact with Vin, but since he's really the only actor who can play Riddick, we feed from the movies and the character he portrays. I think he's a great source of inspiration as far as body language and just "being" Richard B Riddick.
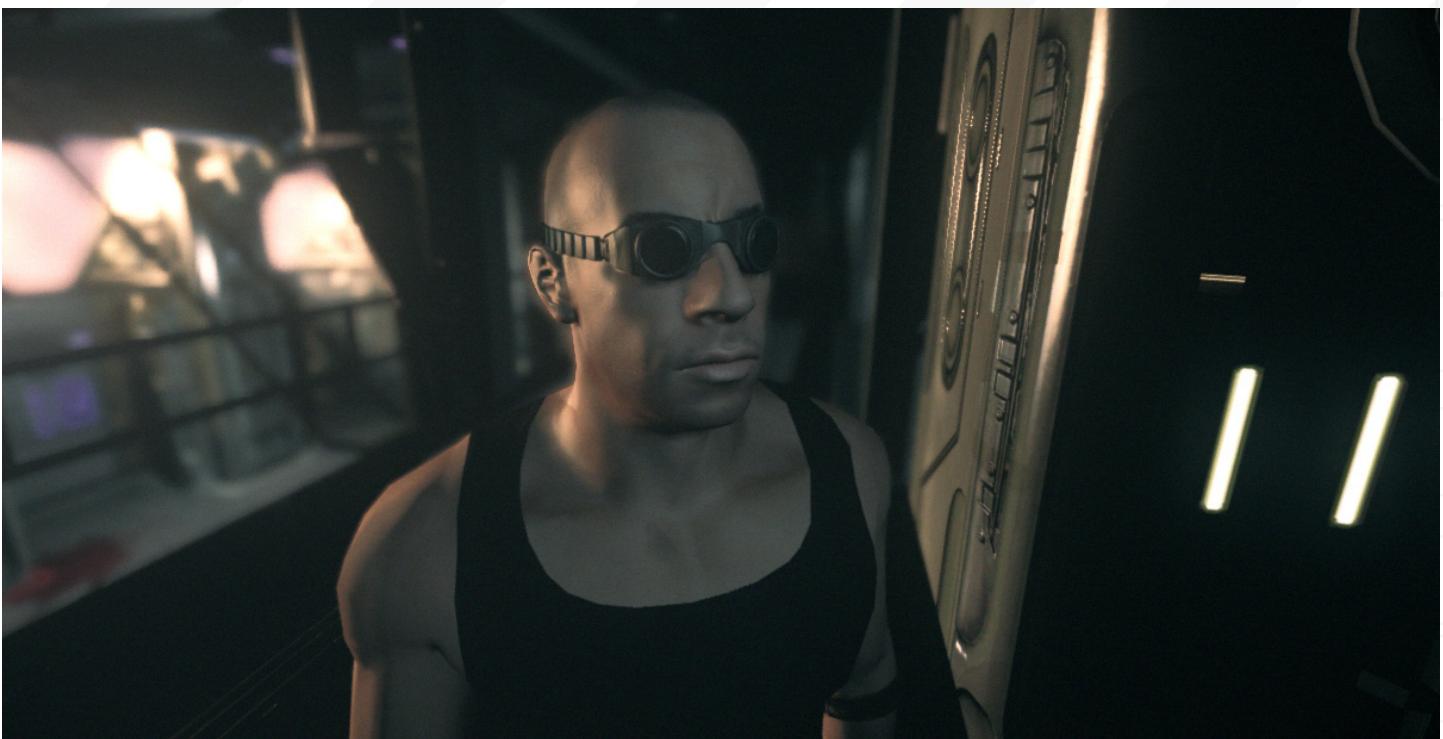
Samuel: Besides being one of the best voice actors in this industry, he's been creatively involved in the process through Tigon Studios, which is headed up by Ian Stevens, a former Starbreeze employee. He's also been part of developing the story and the Riddick character throughout this project.

When it was released, *Escape from Butcher Bay* made use of normal maps, which was a technique that was really only seen in a couple of other games at the time, such as *Doom 3* and *Half-Life 2*. This made it a very distinctive

and atmospheric game. With the huge shift in graphics and animation in games over the last few years, what new techniques have you installed in Riddick's latest venture?

Mattias: Our engine has gone through several major overhauls since Butcher Bay, and we've a lot of new features that help enhance the gaming experience. Using Vo-cap to capture the true actor performances (full body, face, and voice-over all captured at the same time), gives our storytelling a real boost in the fact that what we're seeing on the screen is the actor's full performance. The cinematics are greatly helped with the use of depth-of-field and motion blur, as well as by a slew of post processing filters and effects.

Did you Vo-cap Vin or did you adapt the original models from the first game?

Henrik: Vin was actually "Dub-capped". We used the voice from the V.O session with Vin and had a separate face and body shoot just for those animations.

Besides watching the films (*Pitch Black*, *The Chronicles of Riddick*) what kind of research did you have to do into the Riddick character to give a exact portrayal of him in the game?

Henrik: Well, we really didn't do any other research than watching the films. The films more or less says it all. It was then up to the animation team to get a vibe from this and give life to the Riddick character. For example, when you judge
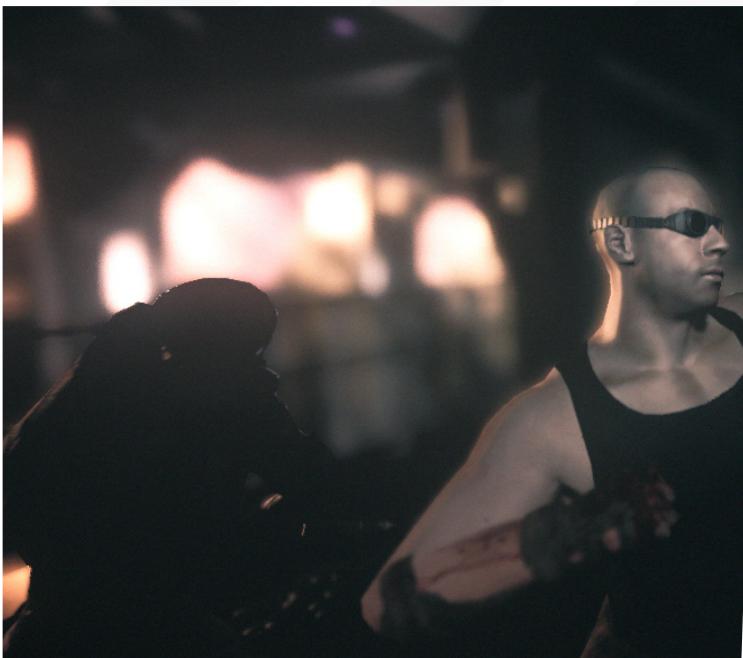
a situation you think to yourself; "Is this what Riddick would have done in this situation...?" It was really helpful to have such a well defined character already.

I've seen a few sample clips of the new game and its quite violent. One particular clip was the title character dispatching a guard with a flurry of knife attacks. How much input did you have in the way Riddick dispatches his foes?

Henrik: All the moves (animations) in the game are a collaboration between us, the AD and of course the stunt actor, who performs the moves - most of the moves are motion captured. When the animation is recorded, it's up to the assigned animator to make it as spectacular as possible. Since it's a first person game, that's quite a challenge, but we over came this.

So did you come across any creative or technical challenges whilst creating the game and, if so, how did the software(s) used help to overcome them?

Henrik: As far as animation went for this project, we didn't really run into
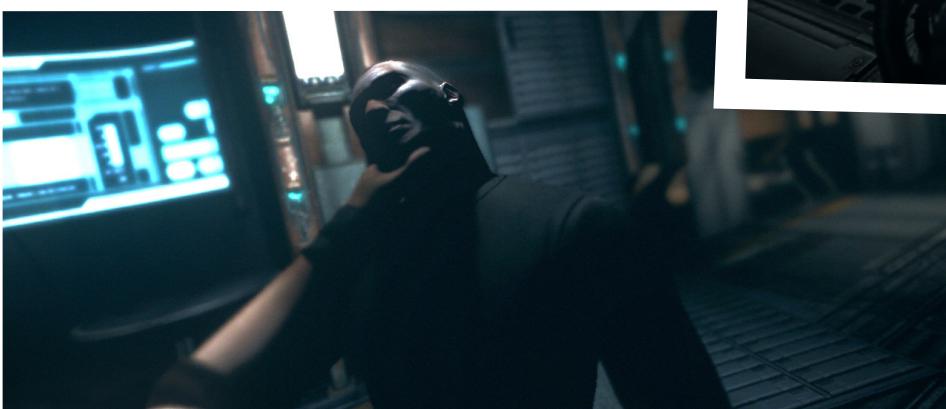
any new challenges. We used the technology from the first game and also new technology that we developed during "The Darkness" project (mainly the way we animated the faces).

Thanks for chatting to us guys and good luck with your future projects!

The Chronicles of Riddick: Assualt on Dark Athena

Starbreeze Studios

For more information about this game and
company please visit:

http://www.starbreeze.com/

Interview with

Henrik Håkansson – Lead Animator

Samuel Ranta-Eskola - Producer

Mattias Snygg - Art Director

the Gallery

Mercedes-GL

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SpeedArt 2010 Porsche GT3

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Dream…

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That's one small step for a CG model, one giant leap for me

Dani Garcia (Woody)

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Image by Dani Garcia, http://www.woodys3d.com

Twisted Dolls: Mistress Lili

Rebeca Puebla

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Tadao Ando - Row House, Azuma

Viktor Fretyán

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Check in with us again next month for an interview with Viktor Fretyán!

Gothic Church
Interior Creation

3ds max   lightwave   CINEMA 4D   Maya   modo

This series will provide an overview of the principal techniques used to create a gothic interior based upon a concept painting along with a tutorial on the process of sculpting a gargoyle character in ZBrush. Key methods covering modelling, texturing, lighting and rendering will be outlined over the course of the series and culminate in a chapter on post production and how to composite numerous render passes into a final image.

FOLLOW

Luciano Iurino, Niki Bartucci, Roman 'dOUGh' Kessler, Tiong-seah Yap and Robert Bergh as they take us through Lighting & Rendering with part 4 of our gothic interior scene which can be found at the back of this months magazine.
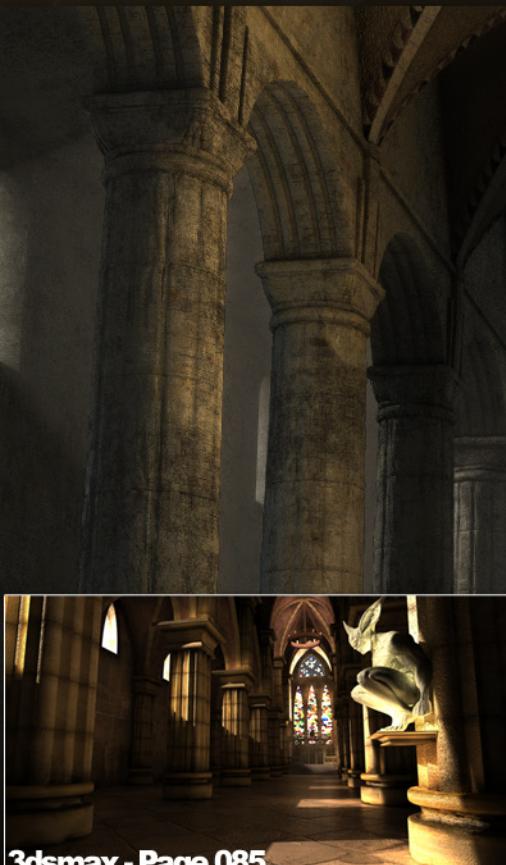
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CYCLOPS

Welcome to the Speed Sculpting section of 3DCreative magazine. Each month we will give two talented ZBrush sculptors a brief and a base mesh from which they are to interpret and speedily sculpt a model within a suggested time. Here we will show the stages of creation of their "speed sculpts" in the form of mini tutorials. You will often find free movies to accompany these tutorials, and we hope that this series will be successful and thrive for many months to come!

This month our two skilled speed sculptors are **Gavin Goulden** and **Jesse Sandifer**, who are tackling the brief:

Cyclops

If you'd like to follow along with these tutorials, we have provided the same free base mesh for you that we also gave to these two artists for their own speed sculpts. Download your own base mesh from the **Free Resources** logo below and get sculpting! Enjoy!

SPEED SCULPTING

SPEED SCULPTING CYCLOPS BY GAVIN GOULDEN

Created In:

ZBrush

GETTING STARTED

Base Mesh: Before you begin sculpting, it is very important to have a base mesh that will not pinch or deform awkwardly when subdivided. I was given a model to work from but, because I like to be difficult and received permission to mix things up a little, I went ahead with a few small changes. Knowing that my creature wasn't going to have two eyes, nose or a human mouth, I removed those details in favour of a simpler, evenly detailed "mannequin" face shape. I also removed the ears as I felt they would be awkward to work with in higher subdivision levels, and turned tris into quads where possible (**Fig.01**).
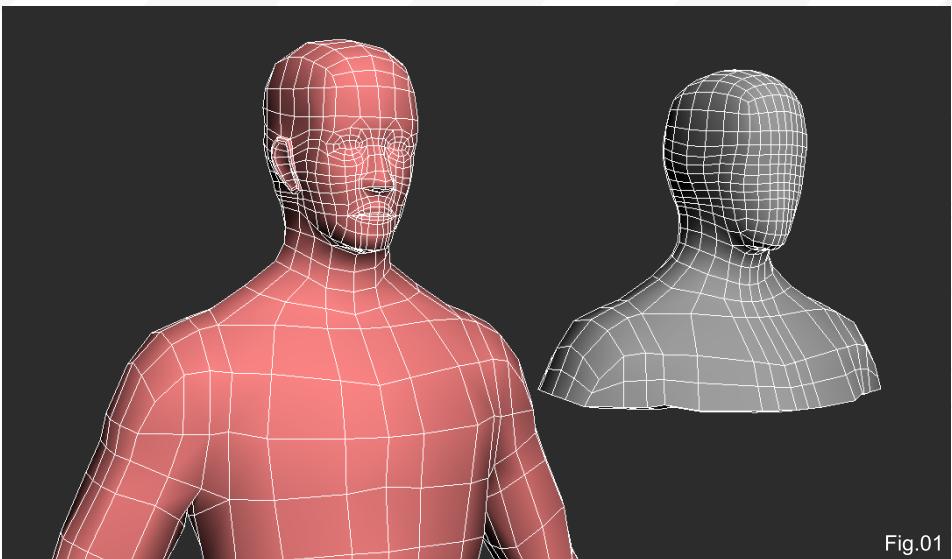
Fig.01
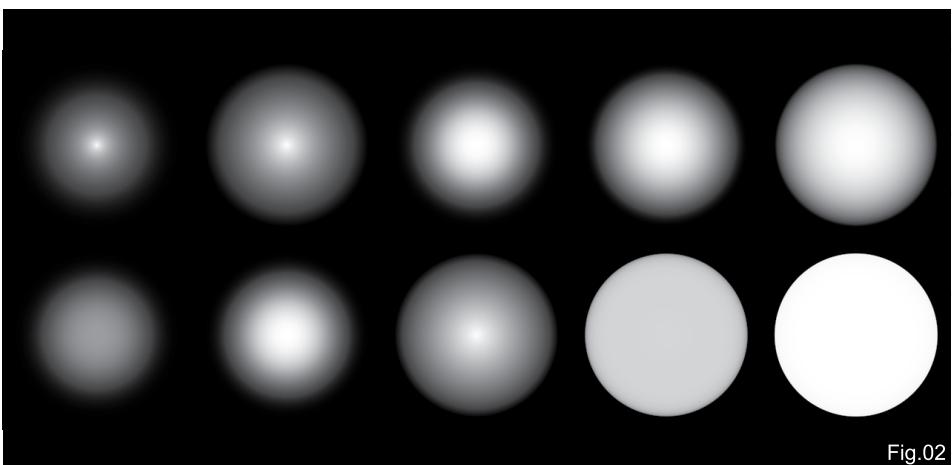
Fig.02

The Make Life Easy Button: Many people have a customised user interface that they prefer in ZBrush. I have yet to adopt one, mostly because of using the default one by habit, but I have assigned hotkeys to all of the brushes I use while sculpting. I have assigned these brushes to my number keys: 1 – Standard, 2 – Flatten, 3 – Pinch, 4 – Clay Tubes, 5 – Move (the brush, not the other one!).

Custom Alphas: An important part of how I work is customising how my brushes work. Not only by changing settings, like focal shift and altering the brush mod, but also by extending my toolset with custom alphas. Much like Photoshop, I usually only use a few "out of the box" brush alphas (like the hard square alpha). Generally, I stick to a set of alphas that I have collected and created over time such as these (**Fig.02**).

SPEED SCULPTING!

Recently, I have been relying much more on my sculpting abilities to hammer out concepts and get ideas realised as soon as possible. Speed sculpting allows you to, obviously, work on your speed, but can also serve as a good way to create concepts for your characters and know, almost instantly, if they are going to work in 3D space.

Fig.03

Blocking in Big Shapes: The first step I take when sculpting a character with realistic features – or something as bizarre as a cyclops – is to block out the major shapes that define the character. This includes defining major muscle groups, facial features (underlying bone structure such as the nose, jaw bone, brow, etc.) and general landmarks on the model that help distinguish the subject.

A rule that is often repeated in the digital art community is to do as much with as little as possible. This rule, in regards to digital sculpting, can easily be related to its traditional roots. Traditional sculptors begin by roughly cutting/adding mass until the general shape of their model is created. From there they refine, until finally getting into a detailing stage. The same rule applies here. You will often see novice sculptors diving straight into the fine detail stage before their bone structure or muscle definition has even been established.

To do this I use a mix of the Move brush, Standard brush and Clay Tubes; Move and Standard to quickly get larger sections of the model in place and Clay Tubes to add or subtract layers of mass (**Fig.03**).

Refining Shapes: The next phase of my sculpting workflow is to go a bit further with the
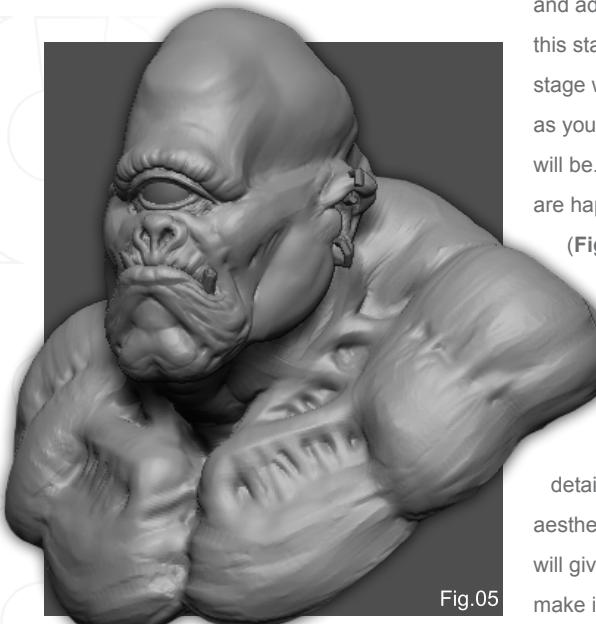
Fig.04

Fig.05

model's larger shapes. Refining ears, eyelids and adding mouth detail are good examples of this stage on this particular model. This is the stage where the model starts to come together as you get a glimpse of what the final product will be. It's also a good time to check if you're are happy with your model's overall shape (**Fig.04**).

Rough Pose/Asymmetry: Once I have the majority of the model's larger detail finished, I usually set it in a rough pose before moving on to finer detailing. I find this makes the end result more aesthetically pleasing as generally, the pose will give the character some asymmetry and will make it feel more alive to the viewer (**Fig.05**).

Detailing: This is the stage where the model starts to sing. After the model has been posed and refined (cleaning up areas that may have got distorted from the move) I will go in with the Clay Tubes brush, using different alphas, and add higher frequency detail; detail that will be viewable when close to the model, but not necessarily from a distance. The reason I use Clay Tubes rather than a Standard brush is that it is less destructive to the geometry. Rather than pushing and pulling the high level mesh to extremes, it adds on to the information already there – much like how the traditional medium would react.

Character Goes a Long Way: To help add detail to my model, without needing to step up a
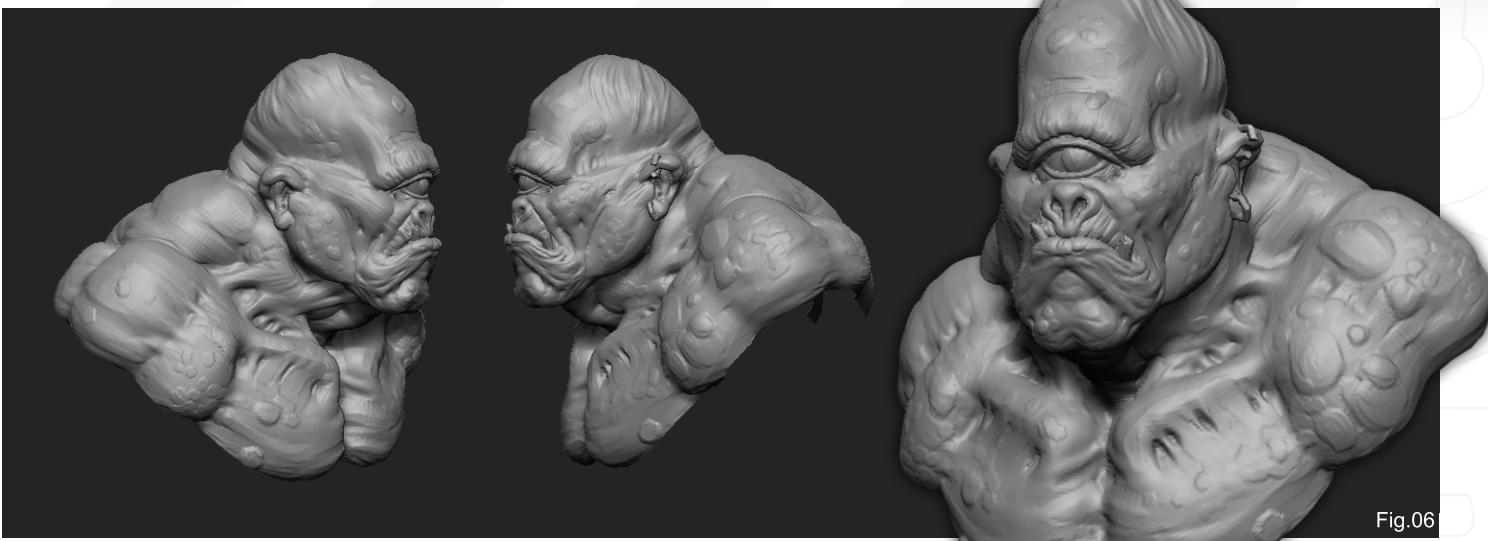
Fig.06

few more subdivision levels, I like to add some simple models as SubTools. These are used to help add personality to the character in a nondestructive way. The base of these models is created in Max using the posed sculpt as a guide and then brought into ZBrush as SubTools. From there, they are detailed using the same sculpting methods as the head.

Afterwards, using the SubTool Master Plugin, I merge all of these together to create one solid mesh for final rendering. Though this is probably an unnecessary step, by combining all of the SubTools into the original model, they all share the same shading values, allowing you to avoid the hassle of poly painting the individual pieces of your model (**Fig.06**).

I'm finished!

Presentation: How you show your final image can make or break the work that you have done. Based on the ZBrush material, some details can get washed out and certain lighting situations can become distracting. Be sure to view your model with different materials and settle on the one that works best for your sculpt (**Fig.07**).

A Little More Love: Using the ZAppLink plugin, I took an image of my model into Photoshop. I did this multiple times with different materials and composited them together to make this final image (**Fig.08**).

Fig.07

Gavin Goulden

For more from this artist visit:

http://www.gavimage.com

Or contact:

gavin@gavimage.com

Fig.08

SPEED SCULPTING CYCLOPS BY JESSE SANDIFER

Created In:

ZBrush

INTRODUCTION

Cyclops: a one-eyed freak of a creature; sometimes the good guy, sometimes the bad guy. For my speed sculpt, I leaned toward the good side and went with a more peaceful approach to the demeanour of the character. So first off, I need to change the base mesh topology to have one eye and add a few edgeloops in some key areas like the shoulders and fingers to make the sculpting process flow better too.

PART I

I start off the model by separating out the polygroups, as usual (**Fig.01**). I typically divide
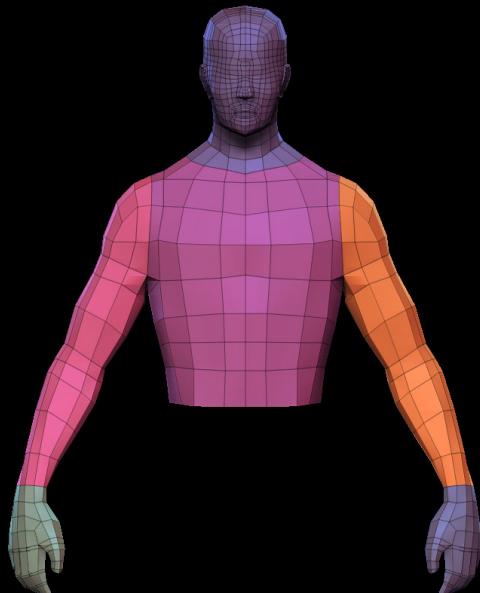
Fig.01
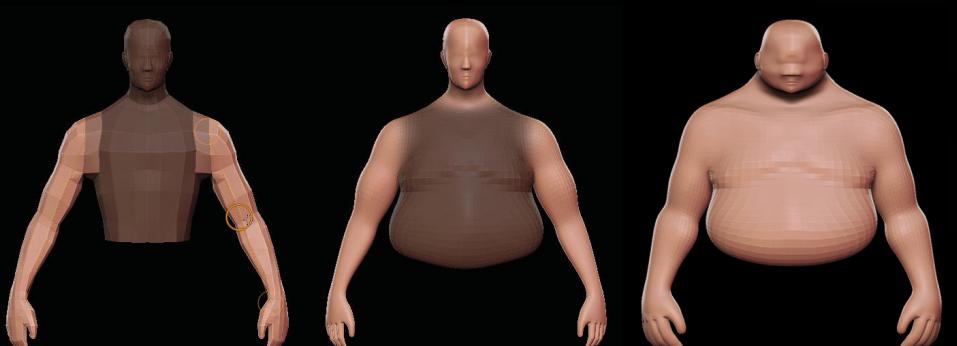
Fig.02

them in the areas that are natural joints in the human body. So I go all the way down to the fingers and thumbs. I've found it's much easier to mask off those areas with these polygroups set up beforehand. Just click on Move, Rotate, or Scale and Ctrl + left-click on the polygroup you want to isolate and it will mask off the rest of the mesh.

Ok, so now I start to push and pull out the basic form and shape of the character which I know I want to be quite hefty. I stay close to the idea of just getting the silhouette blocked out at this point, constantly rotating the model as I work to make sure all angles are attended to (**Fig.02**).

From here, I just continue to block in major forms, like big bulges in the back, the belly, chest (man boobs), etc. I also give some attention to the face and get the eyelids blocked in, and the nasal labial folds for the start of a
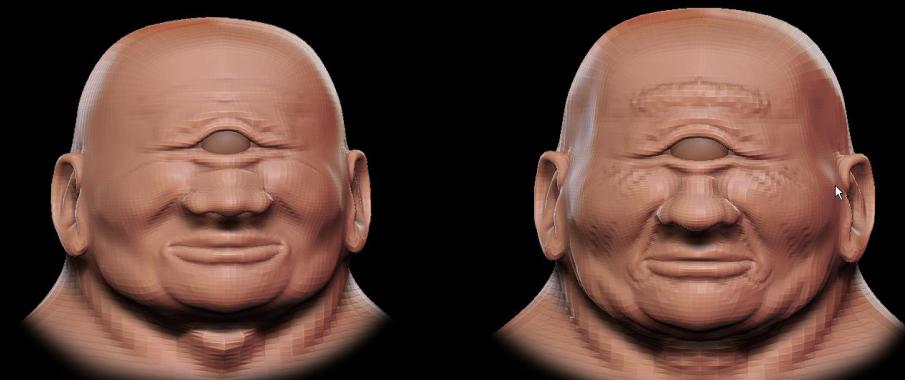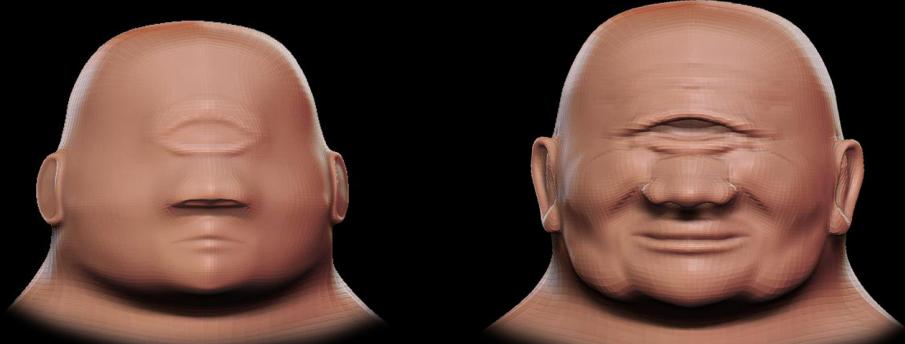
Fig.03

peaceful smile. Nothing too detailed at this point so I can just start seeing the personality of the character come out (**Fig.03**).

Click to download Movie I

PART II

Now let's set the pose up for this guy. As always, I use the Move and Rotate functions to pose my character. I try to stay true to the nature of the joint so everything stays realistic in form. So when I rotate the arms, I start with the whole arm first masked off at the shoulder with a big falloff value (Ctrl + left-click on the masked area to blur more) and I rotate that arm pretty much in any direction, since it's a ball and socket joint (**Fig.04**). But for the forearm and down, I add to my mask by Ctrl + left-clicking on the canvas and dragging a rectangle over that upper arm area. I then blur it a little and set the rotate to start at the base of the humerus and finish off at the wrist. I can then rotate it linearly, since it's a hinge joint, but also add some twist by pulling on that middle circle of the gizmo. I mainly stick to just using the Rotate function to keep all the proportions natural. If I do use the Move, it's more for slight adjustments and fixing slightly off rotations here and there. But I only use the middle circle on the gizmo – again to make sure it's not skewing the mesh. To finish off posing, you'll find that you have to fix some areas where you rotated to fill out the mesh again or to make sure some parts aren't intersecting.
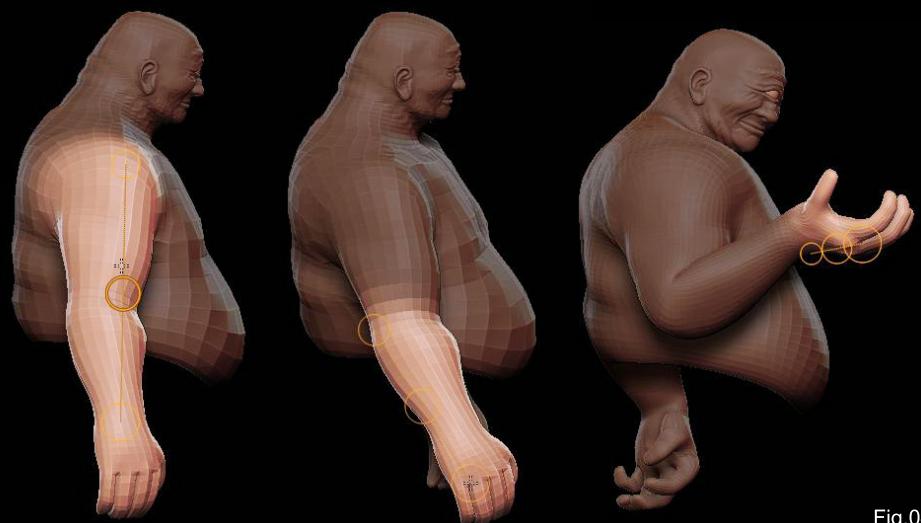
Fig.04

Fig.05

Click to download Movie II

cutting in major folds

Dam_Standard

puffing out areas between cuts

Inflat

Fig.06

PART III

So at this point, I start making some additional SubTools for the shirt and the wrist guards. I do this by going down to the base level of the mesh, isolating the area where I want to put the SubTool (i.e. his torso minus his arms), and hiding all other faces. I then Ctrl + left-click on the canvas and it will mask the area for me. I unhide the rest of the faces and then go to the SubTool menu. I adjust the Thick value at the very bottom of the rollout to make it slightly thinner and then hit extract. This will create a new SubTool in the list (**Fig.05**).

Next, I start cutting some of the major folds into the shirt by using the Dam_Standard brush and use the Clay and Flatten brushes to break up some of the smoothness of the shirt (**Fig.06**).

For the stitches, I decide to use a Stitch brush with a couple of different types of alphas. This keeps the sculpting process fast and allows me to lay in quick but effective stitch work. For the shoulder area, I just use the Stitch1 brush and the alpha that was preset for it. For the other stitches around the rest of the shirt, I create a custom alpha by copying one of the PSDs that come with ZBrush and altering it to my liking. I then save it out as a new file and import it into ZBrush to use with the Stitch1 brush. I turn on Lazy Mouse by hitting the L key and start laying in the stitches (**Fig.07**).
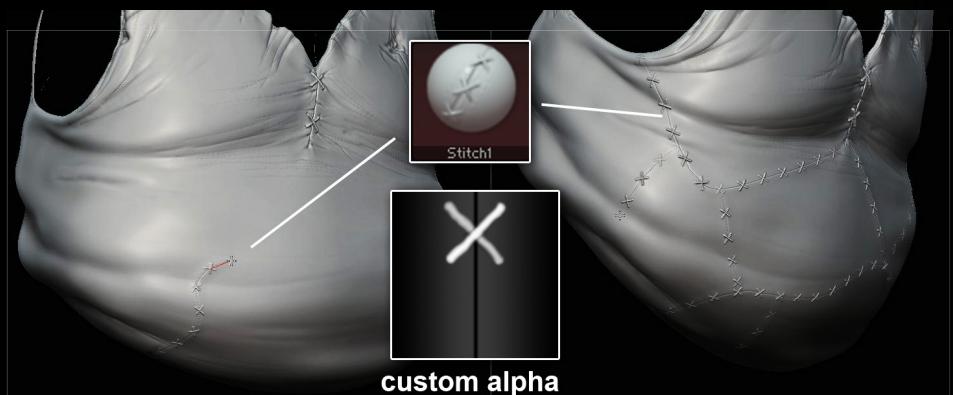
I also cut in fine wrinkles as quickly as possible by using both the Dam_Standard brush and the Wrinkle brush, following the main flow of the shirt itself and the big folds. I mainly focus on putting in the tension around the stitches at the collar, shoulders, and the belly area where the shirt is being stretched out the most. I'll admit this part of the process can be very fun because you really start to see the texture come out, but it also burns a lot of time. So in a speed sculpt session like this, I have to be careful with that tendency (**Fig.08**).
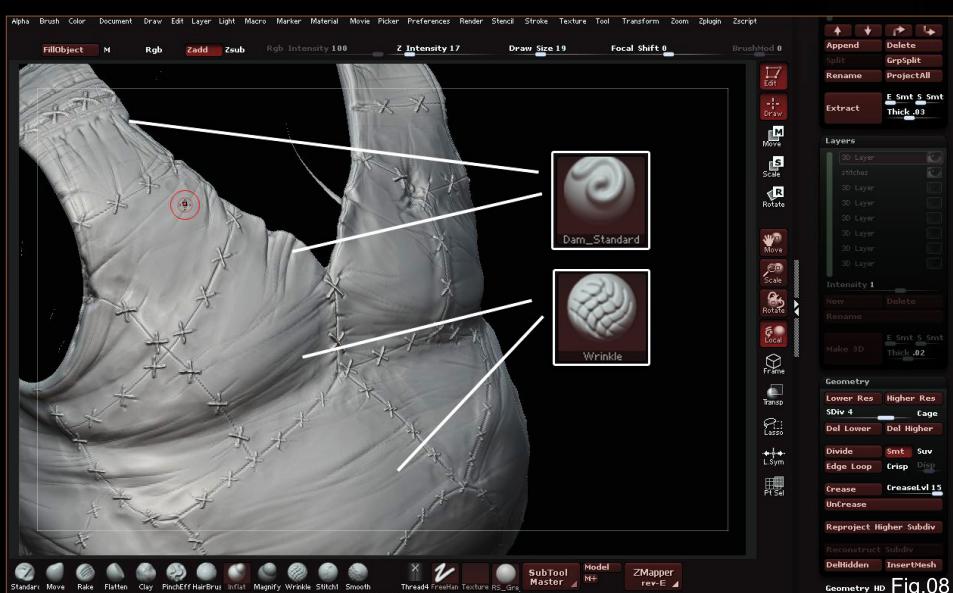
Click to download Movie III

PART IV

So after I stop myself from burning another hour on wrinkle sculpting, I go ahead and move back into working on the skin of the cyclops. I build up

custom alpha

Fig.07

Fig.08

Fig.09

the muscle flow with the Clay and Inflat brushes. Since this character has a large, bulky build, I try to stay away from doing tightly flexed and over-exaggerated forms. I want him to appear thick but still strong. Like my previous sculpting tutorials, I try to emphasise focusing on accurate anatomy. For me, it's a constant area of study and I really love learning something new as much as I can. So for his muscles, my approach is largely based on that knowledge, with a couple of anatomy books open as I work. With his neck area, I want to have some loose skin that has some twist and fold action going on (**Fig.09**). I then work on his face some more, cut in more supporting smile wrinkles, give more attention to the eye area, and define the lips.

Click to download Movie IV

PART V

Now for the hands! I hate doing hand work, in all honesty. There's a lot of stuff going on with hands and fingers. I have to approach them methodically because there's a lot of repeat work with making the finger pads, knuckles, knuckle wrinkles, and fingernails (**Fig.10**).

mask out fingernails

invert mask move out nail tips mask out fingernails

inflate around edges   Fig.10

By using the masking of the polygroups of individual fingers, it really helps to isolate each finger and do the work individually. As I've said before, what always helps me is to look at my own hand as I work. I add a sphere SubTool for the cyclops to hold in his hand, and then adjust the fingers posing accordingly (**Fig.11**).

I decide to redo the wrist guards here because I'm not happy with the proportions of the old ones. I then use the Layer brush to lay in the straps, buckle, and loops. I clean up the work

with the Flatten and Inflat brushes and then start to tatter the edges of the wrist guards by using the Dam_Standard brush. I use it to bury the geometry under the skin of the arm and give the appearance of slices and tears on the wrist guards. Next, I use another custom alpha to mask off some areas where I would add some texture. This way I can pick and choose where I want to cut in that texture and have a more predictable result (**Fig.12**). Once I finish the right wrist guard, I use the SubTool Master to duplicate and mirror the wrist guard over to

move center circle on gizmo   Fig.11

the cyclops' left arm. Then, using the Move and Rotate functions, I place the copied SubTool to fit over the other wrist. Lastly, I duplicate and mirror the sphere in his right hand, put it in the left hand, and adjust the fingers to grab the sphere more accurately.

Click to download Movie V

CONCLUSION

This speed sculpt turned out to be a little longer than I initially expected at right about 5 hours. Probably because of those pesky fine wrinkles I got caught up working on for the shirt! It was fun to make a bulky character with a pleasant demeanour, and I hope you have enjoyed the tutorial. Here are the final character renders (**Fig.13 & Fig.14**).

JESSE SANDIFER

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http://www.jessesandifer.com

Or contact:

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layer on straps

cut in tatter & texture

layer on buckle & loop - then inflate and flatten
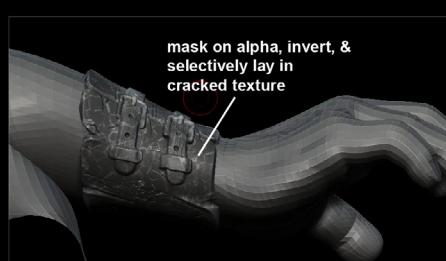
mask on alpha, invert, & selectively lay in cracked texture
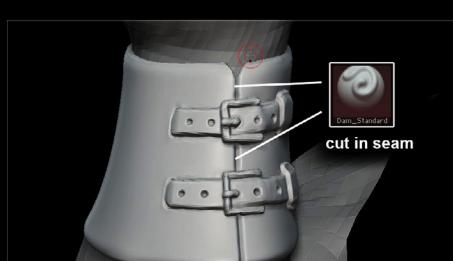
cut in seam

finished version   Fig.12

Fig.13 - 14

Caption: *Complete image production by Taylor James, for Motorola.*

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Think Tank
TRAINING CENTRE

"When I think about this theme, the first thing that comes to mind is a human that had been totally rebuilt. because of this, I'm going to move away from the classic Frankenstein's Monster look and try something different with this tutorial"

Frankenstein
Character Creation
ZBrush

Welcome to the new ZBrush Character Creation tutorial series. Each month, Rafael Ghencev will take us step-by-step through the transformation of a clean, generic head base mesh into a character type of 3DCreative's choice! We thought that topics such as a wrinkled, gaunt, old man, a steroid-pumped guy with popping veins, an extreme tattooed and pierced dude, and even some real extreme cases of personality disorders in the form of a vampire and a werewolf, would be fantastic for detailed sculpting work! On top of all these, Rafael thought it would be cool to sculpt and texture Frankenstein, and we agreed, so we've even thrown that one into the line- up for you as well. So stay-tuned over the next nine months to see Rafael at work and to learn a thing or two about detailed sculpting in ZBrush for characters. This final tutorial covers the development of Frankenstein's Monster. Enjoy!

FREE RESOURCES
DOWNLOAD HERE

Download your free base mesh here!

Frankenstein
ZBrush Character Creation

Created In:

ZBrush & 3ds Max

INTRODUCTION

It's a pleasure for me to do a part of this tutorial series. Rafael Genchev is an awesome artist and my style is a little different from his, so I will try to discuss a little about my process of creation in this final chapter of the series.

CONCEPT

When I think about this theme, the first thing that comes to mind is a human that had been totally rebuilt. Because of this, I'm going to move away from the classic Frankenstein's Monster look and try something different with this tutorial. I always search for lots of references before I start anything – not always just for things specifically related to the theme, but also
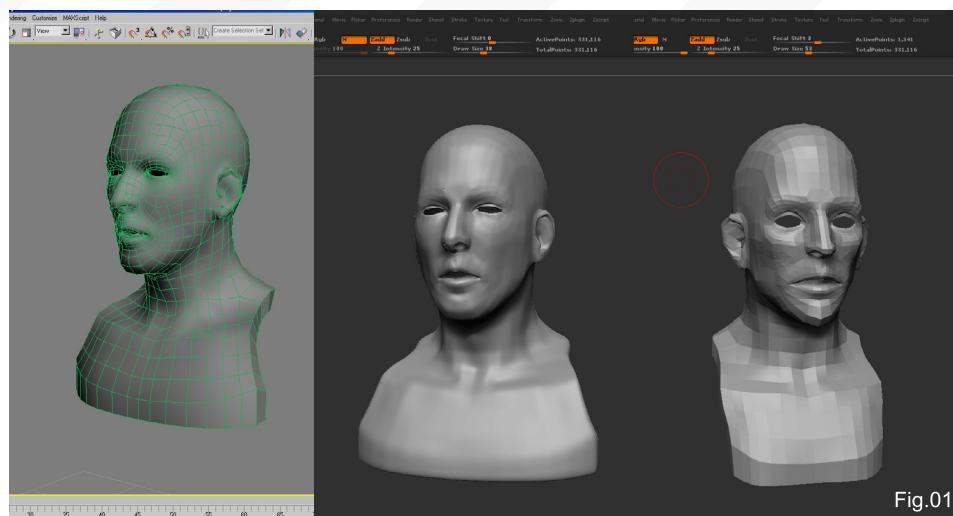
Fig.01

for references that can help me later on. For example, with this project, I'm going to need images of injured people, scars, things related to flesh, teeth, etc. All these kinds of references will help me to create a piece that is more organic and believable.

DEFINING THE INITIAL SHAPE

Before starting a new project it is always good to stop and think about potential future problems. For this one I know that I want to try something different with his mouth and eyes, so before I

drop my base mesh into ZBrush, I add a few extra more loops into areas in 3ds Max (**Fig.01**). With all my references at hand and the main idea in mind, I start to work with the Move tool and find the best proportions for the model. In this first stage I always work with the lowest subdivision, but I subdivide the model first to the 4th or 5th division so that when I divide it later, I don't loose some proportions with the smoothing of the divisions.

For this model I know that there will be some details that the main topology won't allow me
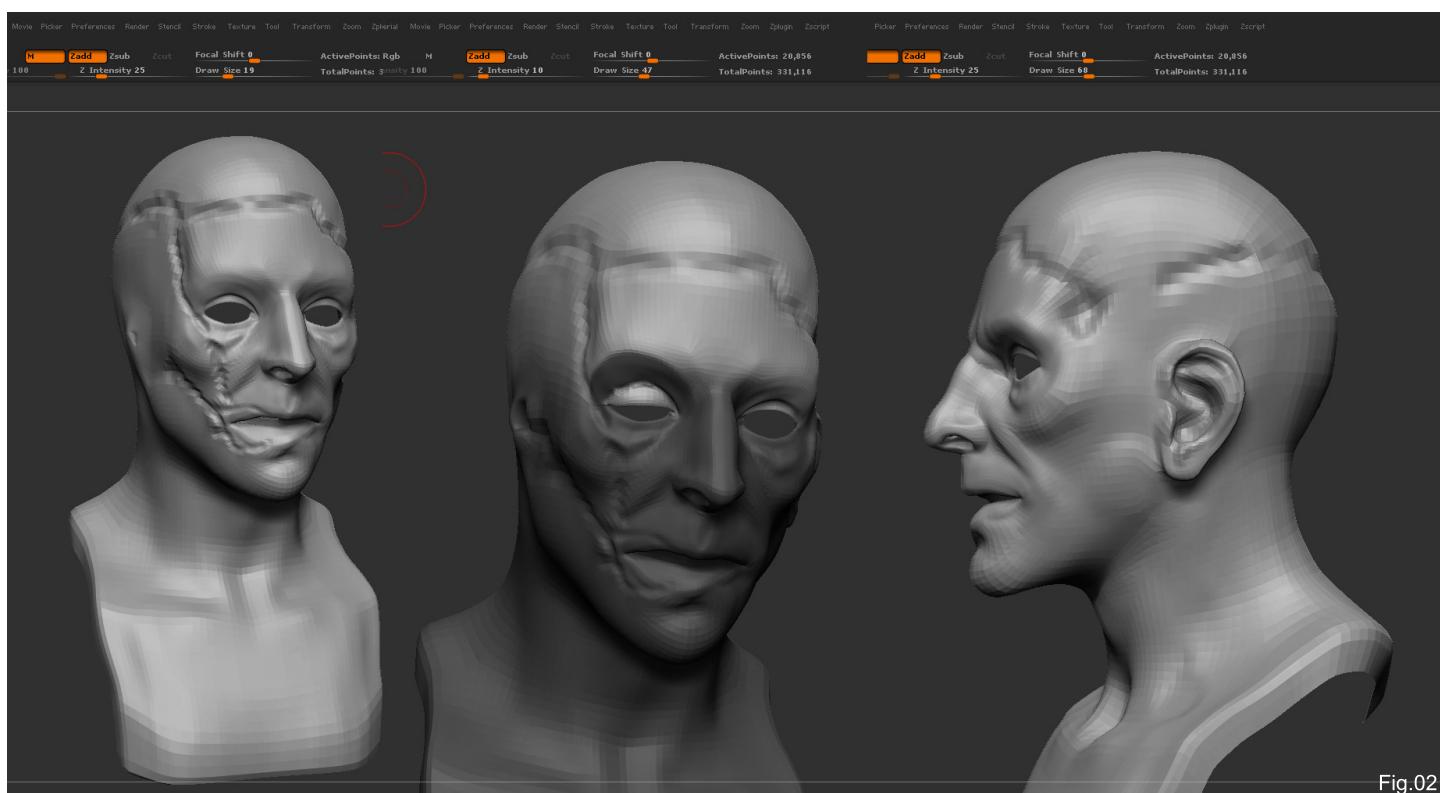
Fig.02

to do with the lowest level of subdivision, so after finding the best proportions I start to work on subdivision level 3, sculpting a few ideas for shapes. Nothing is finished or detailed yet; I'm just finding the best shape for this model before I move any further with the character piece (**Fig.02**).

REFINING SHAPES & ADDING ACCESSORIES

With the shapes I want to go on with established, it's not time to add a few accessories to better visualise the final model. So I model a few accessories in 3ds Max, like teeth and eyes (**Fig.03**). For this, I make really quick and simple base meshes, as this way I can keep more freedom in ZBrush. I attach my rough base meshes as SubTools and continue to work on specific areas, refining the mouth, eyes and head (**Fig.04**). At this stage I always use the Clay, Standard, Smooth and Move and brushes. Also for this piece – and I don't usually do this – I decide to work without symmetry right from the beginning.

After getting a bit more advanced with shapes and details, I then have more freedom to add specific accessories in place. I do this in the same way I made the other accessories (eyes and teeth). I refine the shapes in ZBrush, thinking about what I would like to add, and then create simple base meshes in 3ds Max
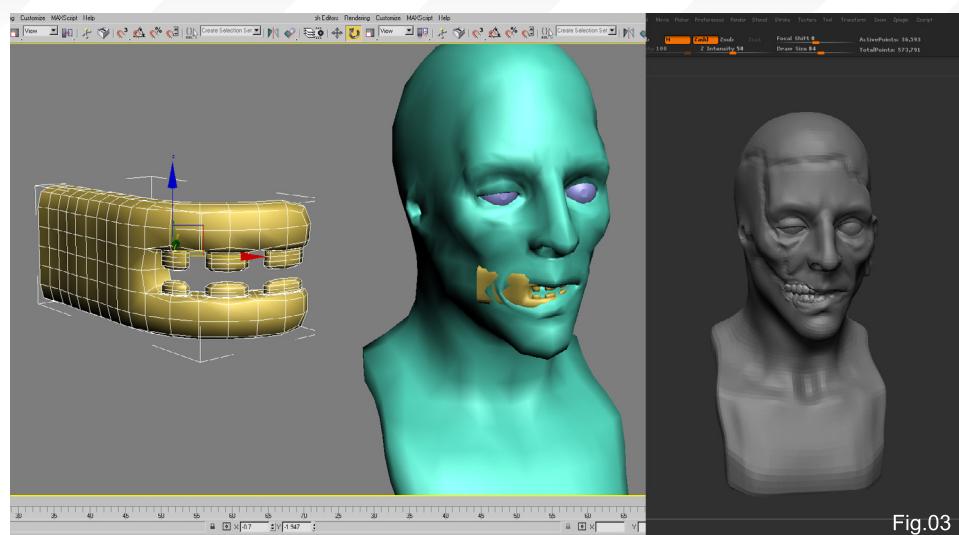
Fig.03
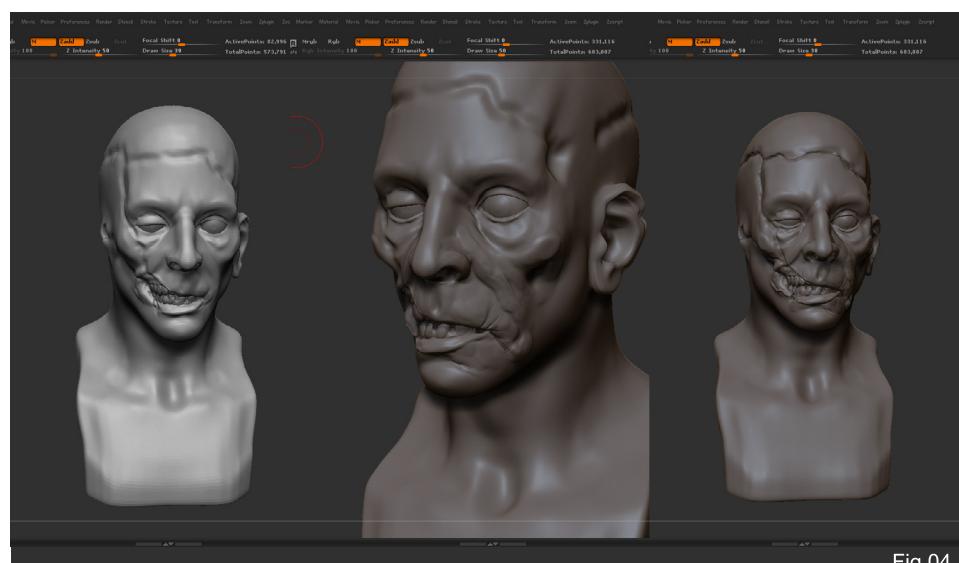
Fig.04

using primitives that I can import into ZBrush and append to the model. I then use the Move and Rotate tools to pose them and continue

adding details (**Fig.05 & Fig.06**). In a few areas it's hard to get a nice shape without isolating the area. For example, in the mouth I mask that area using the Ctrl button to work on it with more freedom.
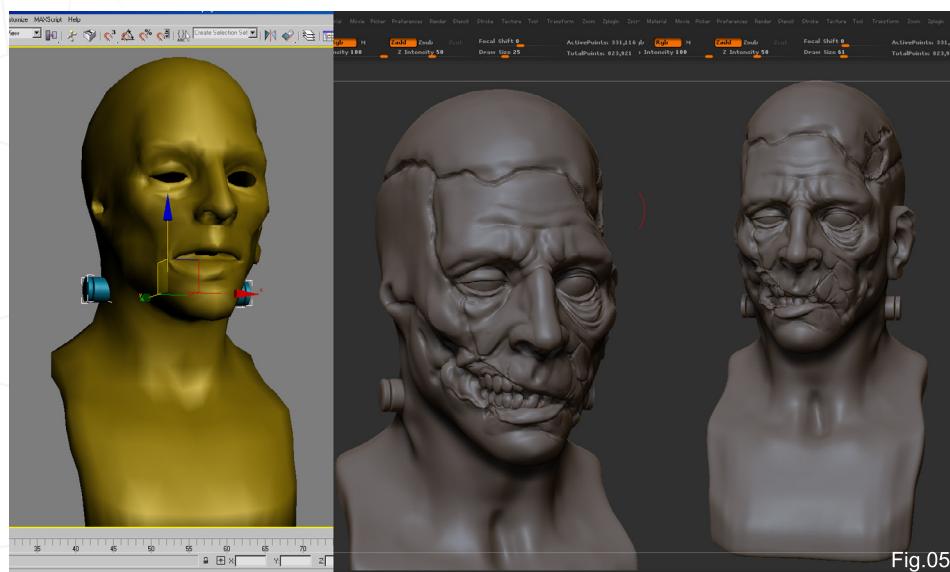
While detailing the model in ZBrush, I start thinking about some of the accessories that I will be creating later on. After sculpting in a few lines on the face in the previous step, I take that further now by exporting a low-res version on the face, which allows me to see the lines, and importing it into 3ds Max once again. Here I create and position small boxes on top of the mesh. After importing these boxes into ZBrush, I use the Move tool to distort them and then use the Standard brush on the mesh to make them interact with one another (**Fig.07**).

Fig.05
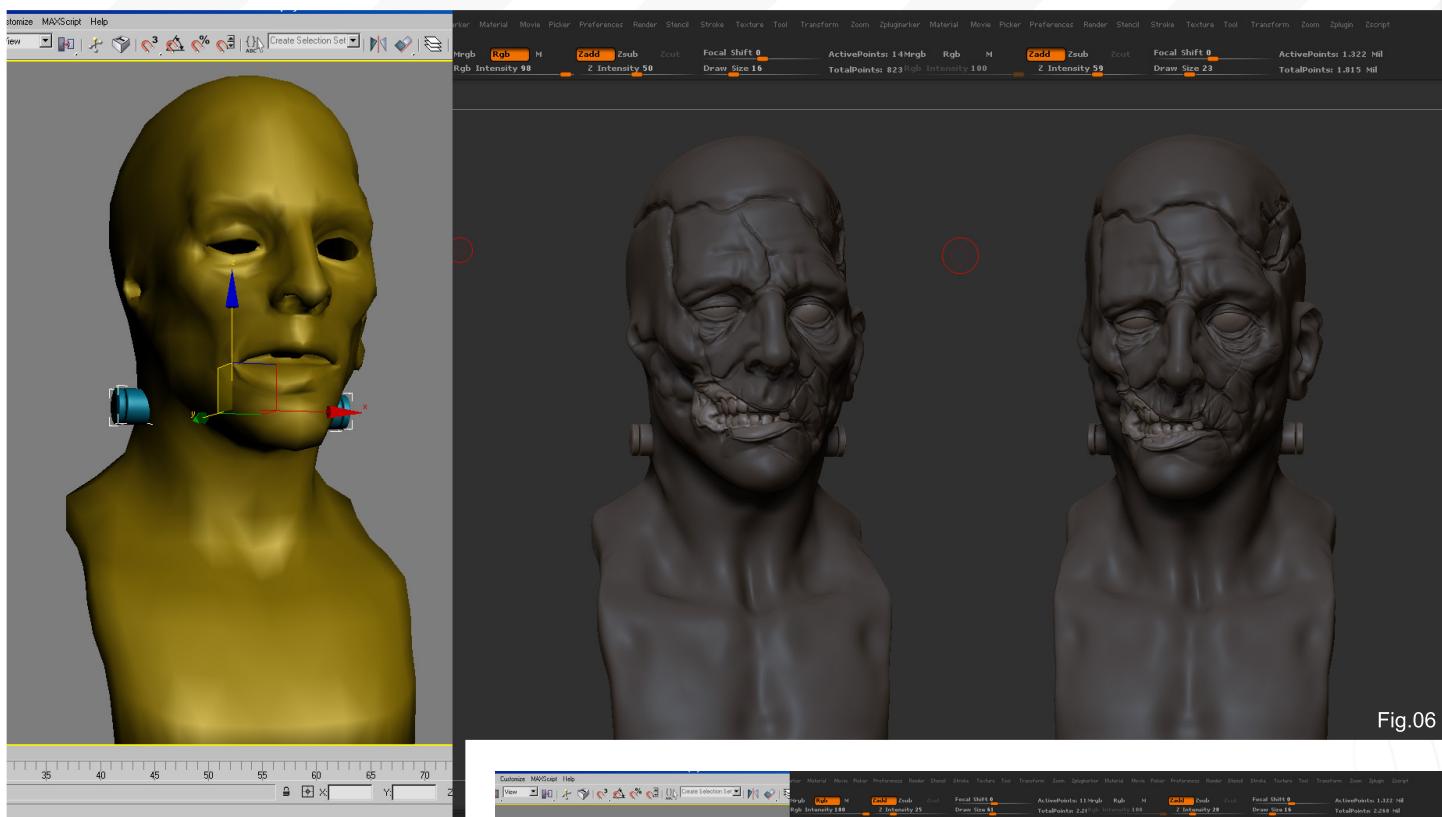
Fig.06

Back to 3ds Max now, I use a spline to create some stitches in his face. After importing it back into ZBrush, I use the Move and Standard brushes to make it look more organic (**Fig.08**). The metal plate in his chest I make with a simple plane positioned inside his skin and then, using the Standard brush on the character's mesh, I pull the polygons inside the plane to give it a torn look. But actually, it's just an overlap of meshes.

FINAL DETAILS

With the model in its final shape, I can start to add small details, using the Standard brush with Lazy Mouse turned on. This way I can get clean lines with a small brush size. I start to refine wrinkles, veins, and work on small details on the eyes, mouth and scars. Once satisfied I then draw further details using the Inflat brush to make it all look more natural. And at the end I use alphas to add small pores and blemishes.

TEXTURING

For textures, the most important thing is to look at references. This is when every reference becomes important; a small detail on the image,
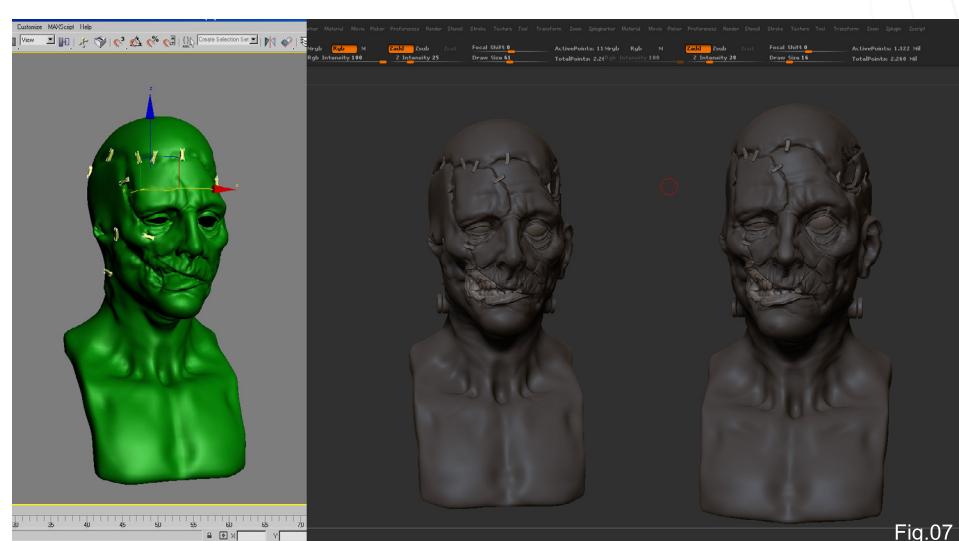
Fig.07
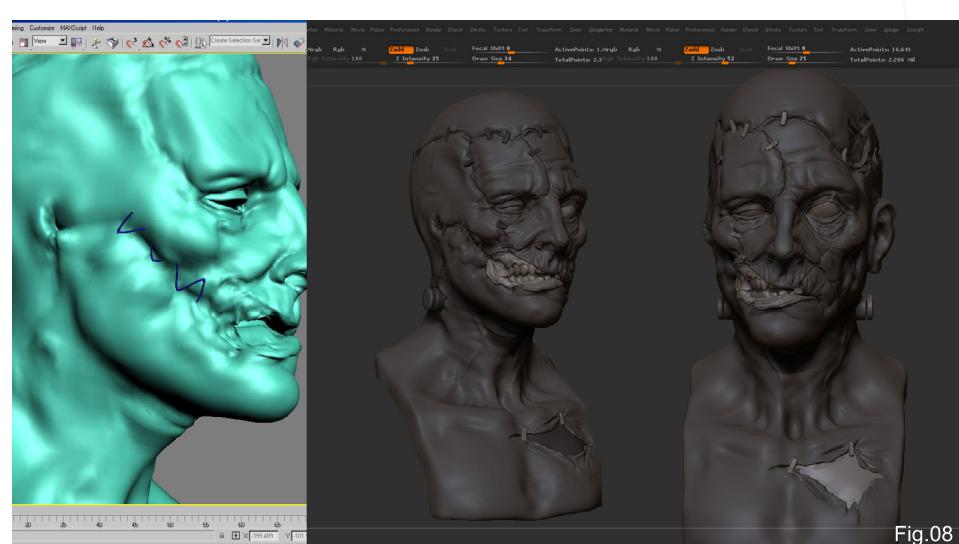
Fig.08

the colours – everything can help at this stage. Another thing that I think is important is to only work with a small variation of colours. In every model I try to keep the colours almost the same with only small variations. For this model I don't use any textures from outside ZBrush, I just use Polypaint. In this first stage I colour the entire model with a skin tone (**Fig.09**).

Using the standard colour, with brush and spray at a low intensity, I start to make some areas stand out, faking a small occlusion. I then go in with a darker colour, continuing to work on the areas – you can see how this helps to set back a few areas and objects (**Fig.10a**). Just with colour variations and intensity I keep adding colour to the entire model. Using the cavity and mask (**Fig.10b**) with a low intensity I give more detail to the textures - I try to only do small variations. Finally, I create the eyes in 3ds Max and then import them into ZBrush.

Materials

I like to use different materials on my models. To apply them you just need to turn on the M, instead of RBG, and choose the material you want – hit draw in the fill palette. For the lips I want a glossier material so I use the ToyPlastic one, mask only the lips and apply it only to the masked area. For the face I use the SkinCore material, and by flipping the mask I apply it to the rest of the bust (**Fig.11**).
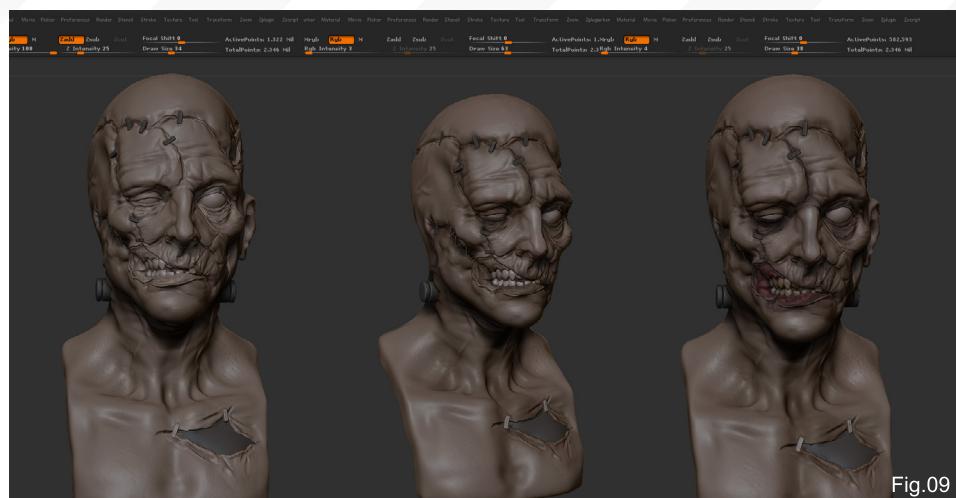
Fig.09
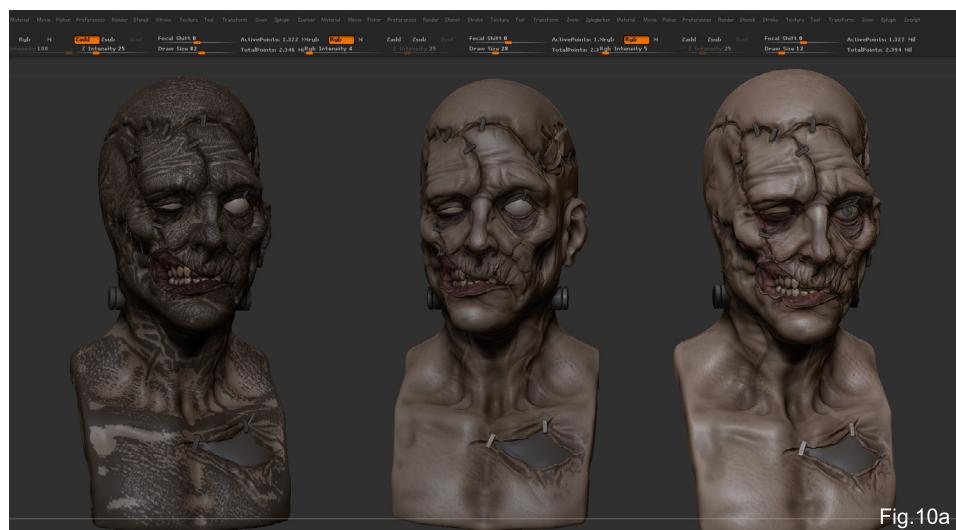
Fig.10a

I hope you have enjoyed this tutorial. It was a pleasure for me to do this chapter after all the awesome characters that Rafael Ghencev has created over the previous months. So thanks for reading, and happy ZBrushing!
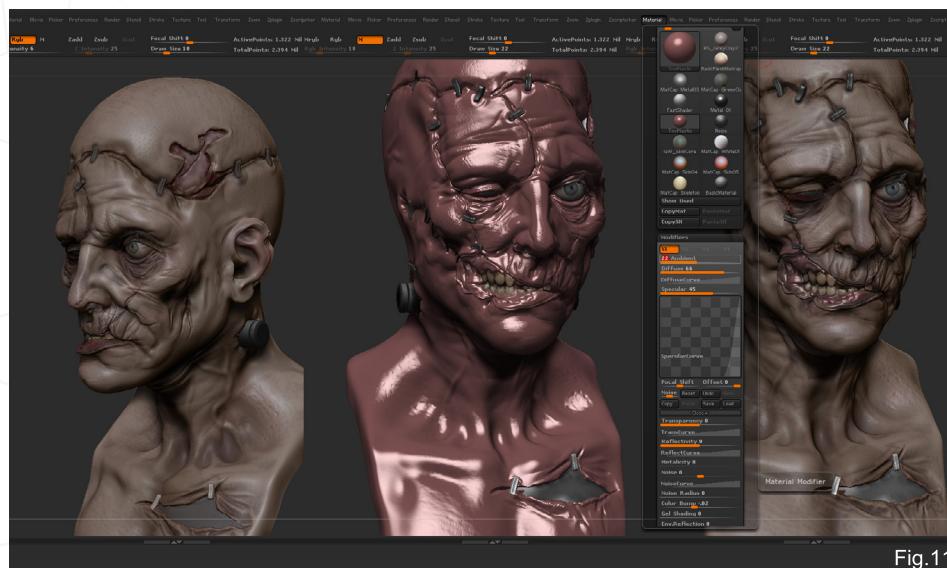
Fig.10b

Fig.11
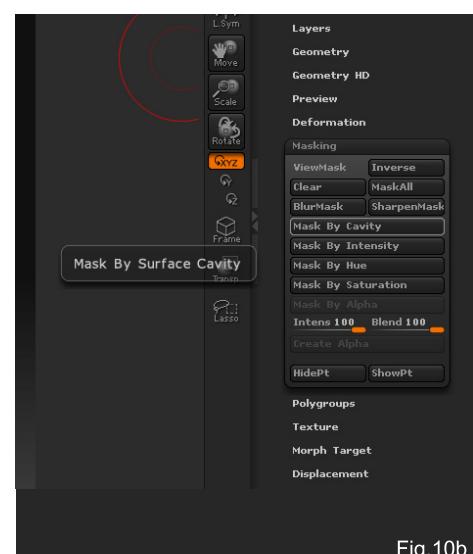
Rafael Grassetti

For more from this artist visit:

http://grassetti.cgsociety.org

Or contact:

rafagrassetti@gmail.com
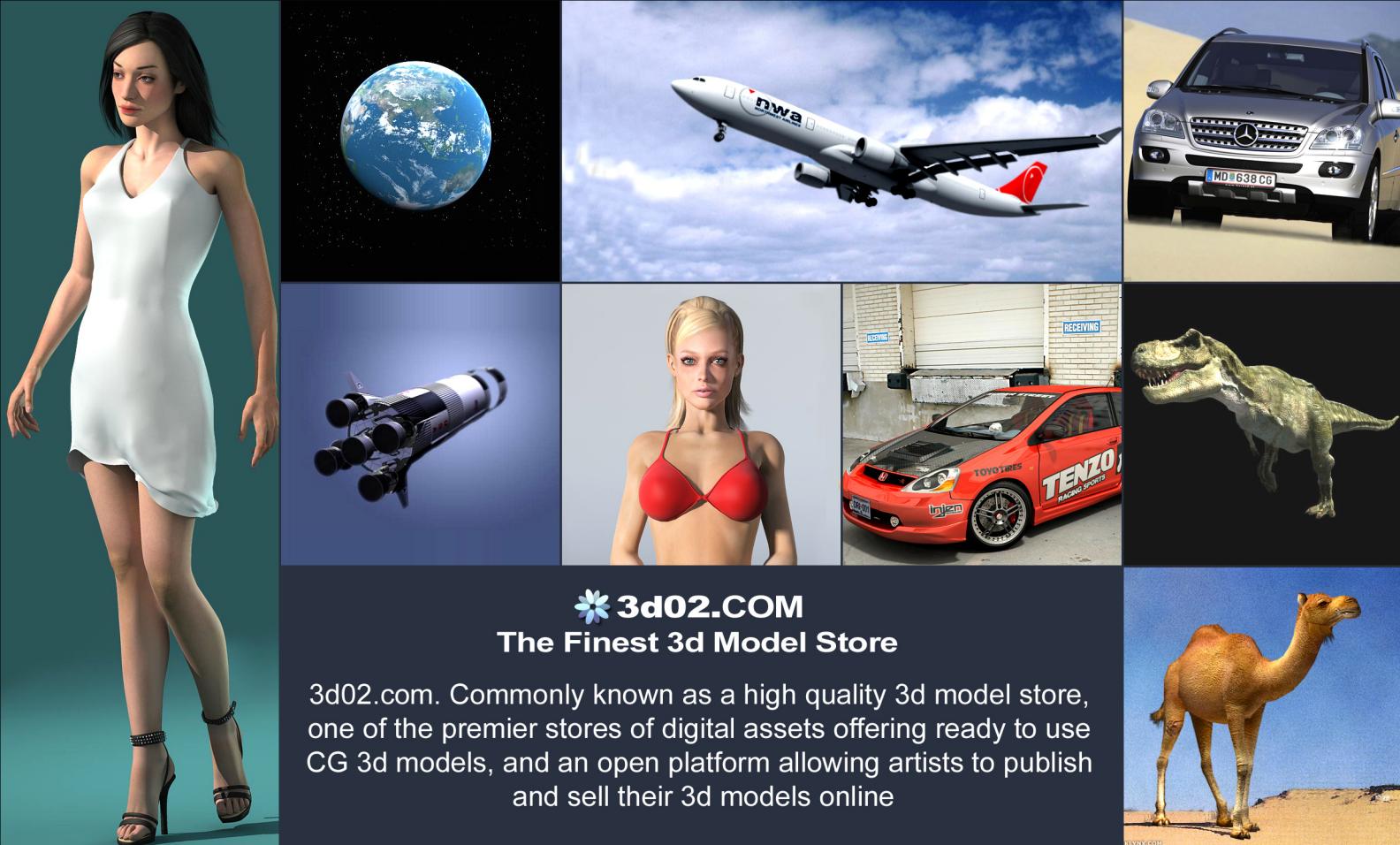
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"I IMAGINED THEM AS CREATURES - NEITHER GOOD NOR BAD, JUST LIVING BEINGS. THEY HAVE A DIFFERENT SOCIAL STRUCTURE, A DIFFERENT WAY OF COMMUNICATION AND DIFFERENT EMOTIONS AND WAYS TO FEEL THINGS."

MAKING OF BY FEDERICO SCARBINI

ZENOTH,
THE ALIEN FROM JUPITER

Federico Scarbini shares how he created his image "Zenoth, the Alien from Jupiter" and the concept behind it.

ZENOTH, THE ALIEN FROM JUPITER

Created In:

ZBrush, TopoGun, RoadKill, Photoshop

INTRODUCTION

I think that every man, once in his life, takes some time to wonder about extraterrestrial beings; it's quite normal, I guess. The most frequent questions are most likely, "What would they look like?" and "How would they relate to us?" – two very basic questions and yet an infinite number of answers. Science-fiction has already outlined a very detailed archetype of alien beings, their forms and their behaviour, so we already have a familiarity with this kind of subject from what has been said and shown to us. It is very difficult to go against something we are used to, and I was very aware of this before starting the project; I didn't want to go crazy with originality, I simply wanted to create my
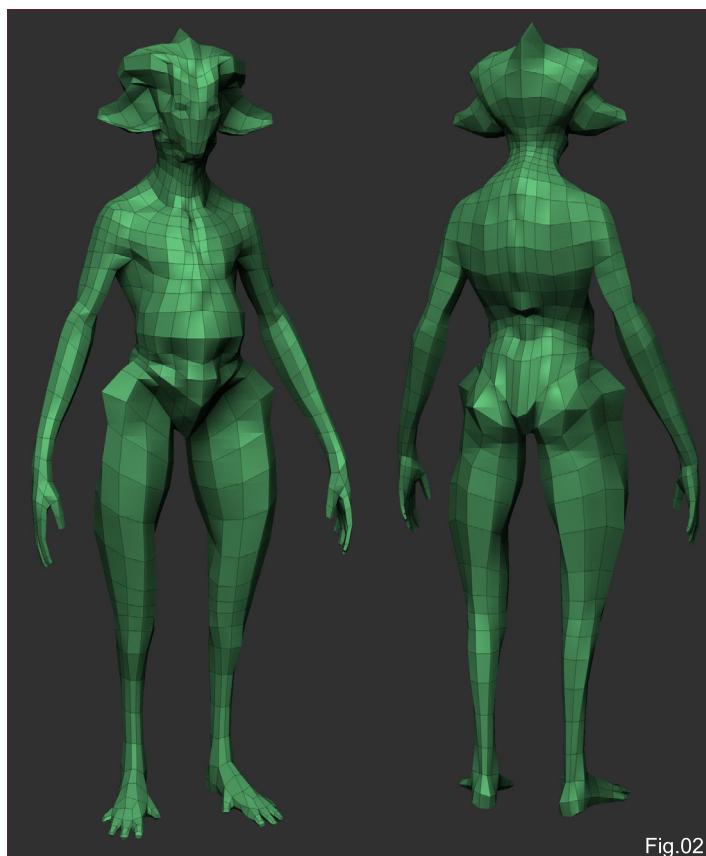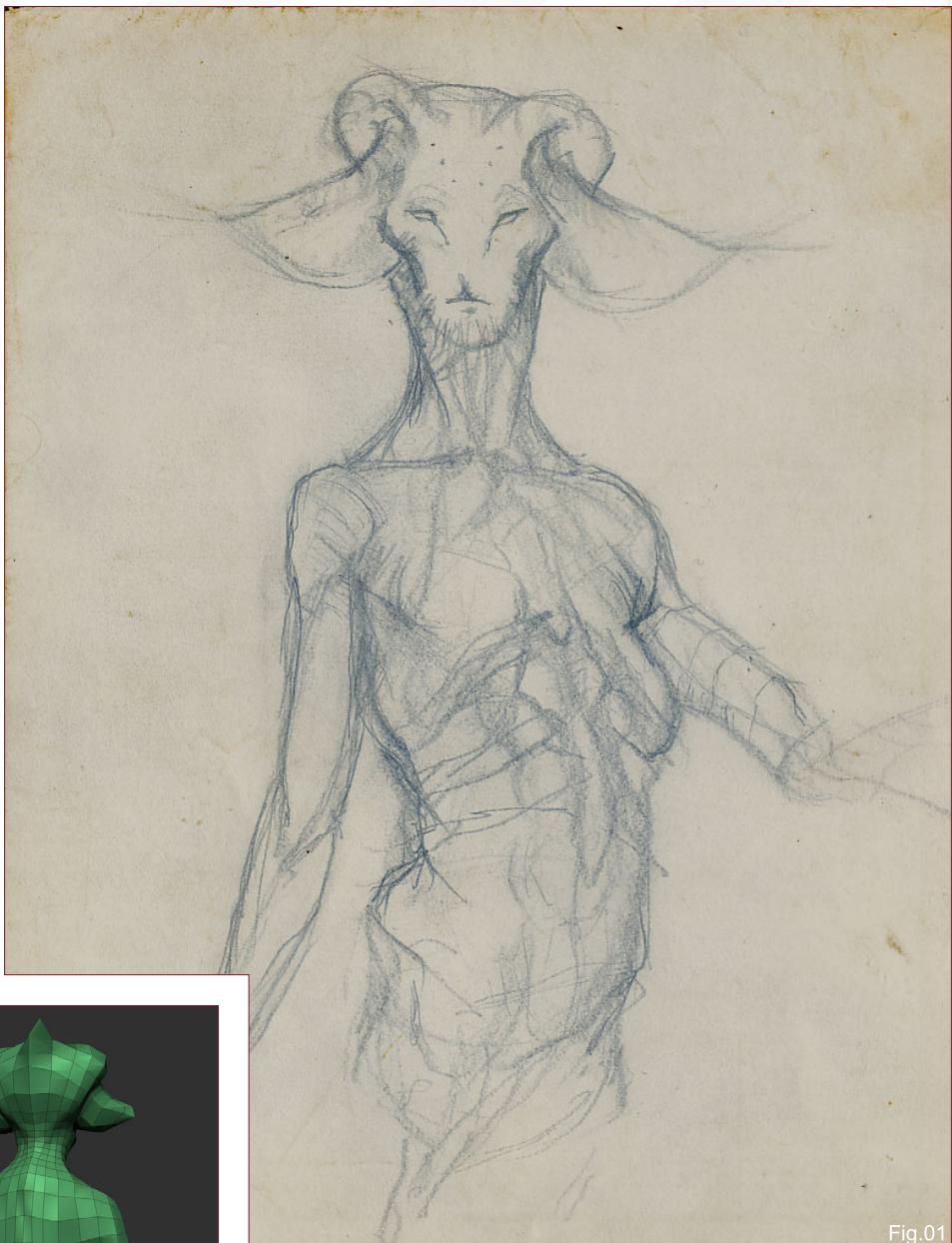
Fig.01

own personal view of an alien without shifting too much from the popular essence of them.

I imagined them as creatures - neither good nor bad, just living beings. They have a different social structure, a different way of communication and different emotions and ways to feel things. Take a predator like a lion: it's not a bad animal because it kills other creatures to survive; it's just in its DNA. This is the same for Zenoth: he comes to Earth to eliminate humans because they need our planet for survival – just for this reason, and no other. There is no chance to communicate with him; he simply doesn't care about us in the same manner as we don't care about ants. He's not curious, he doesn't feel anything, and his mission is purely to eliminate us. He's not bad because he kills humans, and there's no reason to eliminate us because of something wrong we did as human beings. We're just in the wrong place at the wrong time!

Fig.02

Design

I was very confident about the humanoid form (four limbs and a head) just because if we are the most "advanced" creatures on this planet then there must be a reason for us to be made like this, and I think that our features would be the best mode of choice for more advanced beings. The skeletal and muscular system is a "deformation" of the human's; they have a larger chest being supported by stronger muscles anchored to the spinal bones that have a more complex and stronger structure then our own. The pelvic bone has been rotated a bit, and a "spoon-like" form has been given to it to better support the heavy chest. Likewise, the legs and their muscles have been adapted to the new structure, although the base muscular system is very similar to the human one in "mechanical"
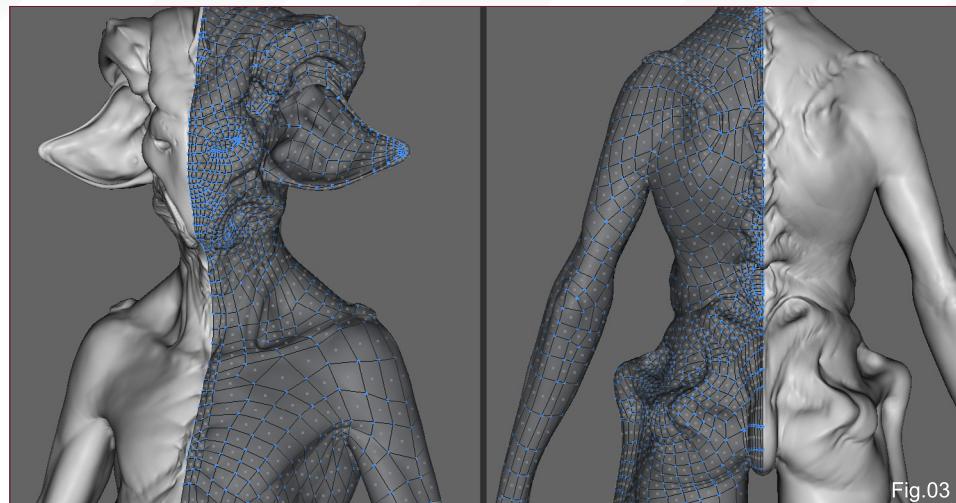
Fig.03

terms. The head is perhaps the most original part of the whole alien, as you can see from my preliminary sketches (**Fig.01**). I imagined him to have a mouth; later I decided to cut the mouth off his face because of a careful consideration
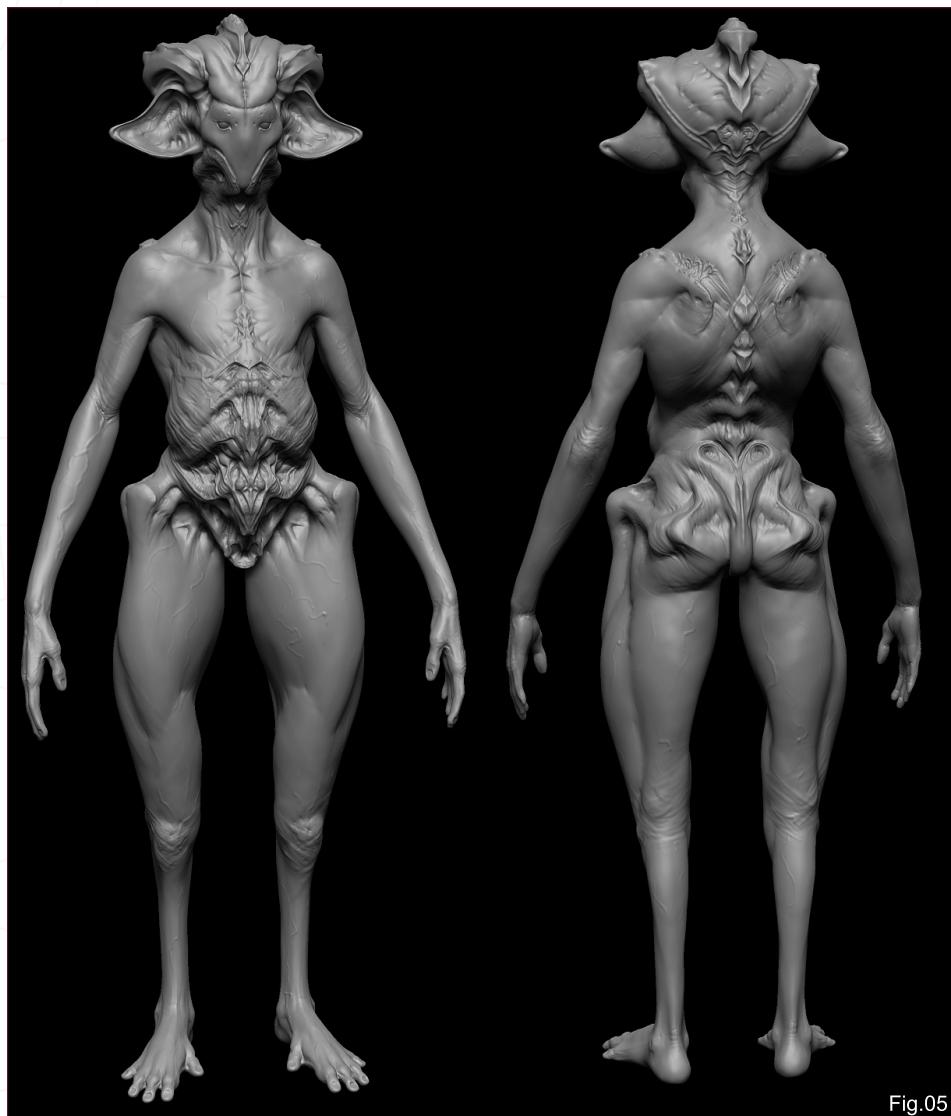
Fig.04

about their behaviour. I didn't want humans to think they could talk with them or to believe that there could be some sort of communication. No way! Zenoth is not here to have a talk, be friendly or to try to understand how humans are, this is not how he is supposed to behave. I very much liked his big ears right from the beginning, perhaps just because it makes him looking a little more animal-like.

Modelling

The modelling process started as usual with a simple base mesh (**Fig.02**) that was basically an adaptation of a human one; I just quickly remodelled the parts that I needed to be different (head, feet). I took this low-res mesh into ZBrush and started sculpting, focusing on balance, rhythm, gesture and volumes. During this phase I used the Move, Standard, Inflat and Clay tubes brushes, sculpting in every subdivision level until I could not stress the

Fig.05

mesh anymore. This way I avoided focusing on details too early on in the model. This is very important because you want to lay down volumes in "layers" of complexity; you can't just push the Subdivide button and start going crazy with wrinkles. If you do this, you'll lose the major volumes and your details may appear like a bump instead of being generated from a particular, underlying structure.

When the main features were in place, I exported a mid-res mesh that preserved some of the major details and imported it into TopoGun where I started the retopologising process. TopoGun is in beta testing right now and I am one of the modellers that have been accepted in the beta; I have to say that I found myself very comfortable using it right from the very beginning. It is very fast, reliable, and it has lots of useful tools that help you to be more efficient in the retopologising process. These are tools that I've really missed whilst doing the same thing in ZBrush: bridge, connect, loop-split, relax, and merge, among others (**Fig.03 & Fig.04**).

Once the model was retopologised, with animation and deformation in mind, I exported the new mesh back into ZBrush. After I subdivided it a few times I re-projected the previously-modelled details onto it. From here on, I focused my attention on finding a balance between details and major volumes (**Fig.05 & Fig.06**). This is a very important
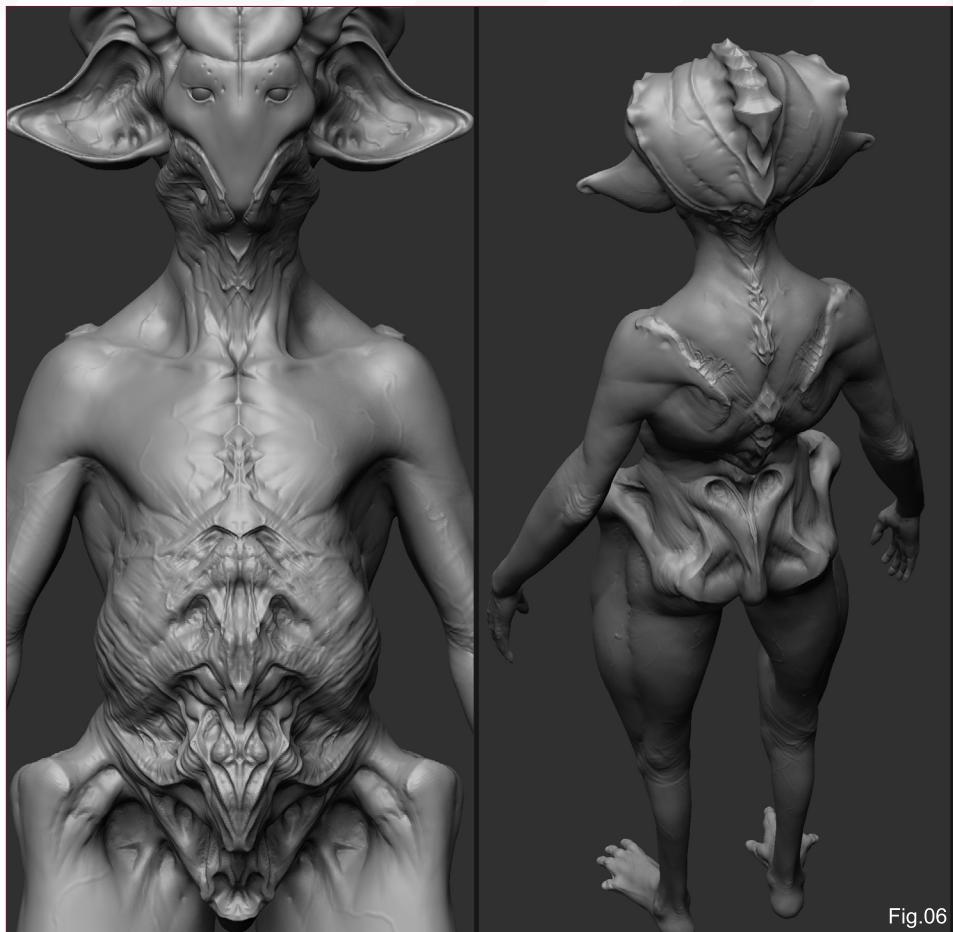
Fig.06

step, since sometimes you can have models with a good amount of details but bad definition of major volumes and vice versa. You have to stay balanced with details, never overdo it if you don't feel that you (or, I should say, the model) really need those details. Good understanding and the study of animal and human references is a great way to improve your skills. Carlos Huante, Jordu Schell, Steve Wang, and Takayuki Takeya amongst others
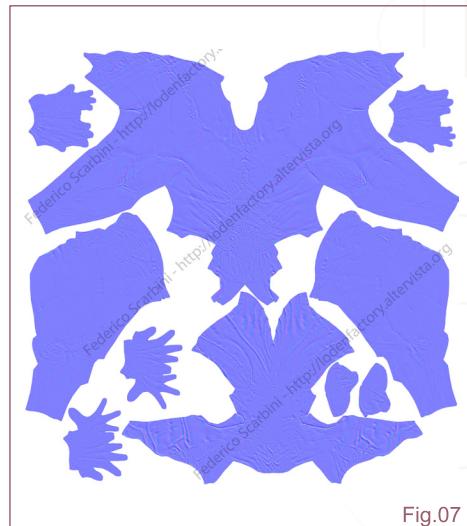
Fig.07

are great masters to learn from; their designs are awesome from this point of view.

Once the modelling was done, I baked the high frequency details to the mesh at its lower subdivision, with ZMapper inside ZBrush generating a 4k normal map (**Fig.07**). The mesh was previously unwrapped with RoadKill, a stand-alone programme by Francis O'Brien.

Fig.08

Fig.09

Fig.10
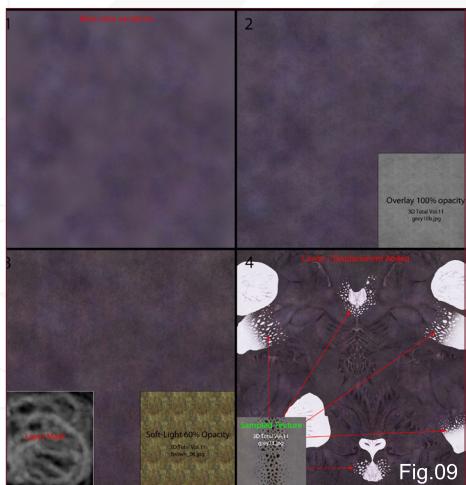
Posing the model was very simple: I used the Transpose tool in ZBrush to get the "power-pose" I was looking for. Once the model had been posed, I re-sculpted some parts of the mesh to reflect the gesture in the body structure.

Texturing

The texturing process was a very crucial part in the design. Since the subject was so popular, I wanted to find something that would make people understand, at first sight, that this alien design was mine. At the beginning, I didn't have a clear idea for the textures, and I tried a "pop" colour scheme. However, I soon realised that this wouldn't work for me and so I started looking for inspiration by studying all the reference of exotic animals I was able to find, until I found some kind of poisonous frog that really caught my attention – bluish with black spotted limbs. Another aspect of this exotic skin really pushed me in that direction: poisonous

animals have a very distinct pattern on their skin, which makes other animals aware that they are in danger. This perfectly fitted my vision of Zenoth and his behaviour.

In Photoshop I laid down a first solid colour for the whole body; on another layer I applied the second colour for the one on the limbs. Changing the hue/saturation on each layer

(turning the Colorize option on) I could play with different colour palettes. This way I had the ability to try many different colour schemes and preview them in Max before choosing the best one (**Fig.08**).

Once I'd chosen the two main colours, I used random brushstrokes in order to add variation to the textures. To keep consistency colour-wise, I simply picked colours with that derived from the main one. To push the randomisation further, I also used some handmade brushes. I made a few layers this way, but I missed a bit of sharpness in the details. The second step was to utilise some textures from the 3DTotal Textures DVDs (www.3dtotal.com/textures) to get some sharp details and organic patterns going on in the skin and also to get more variation. This is really the key when it comes to texturing organic stuff. I searched for both organic textures and concrete ones and used them together, sometimes using one as a layer

Bump

Specular
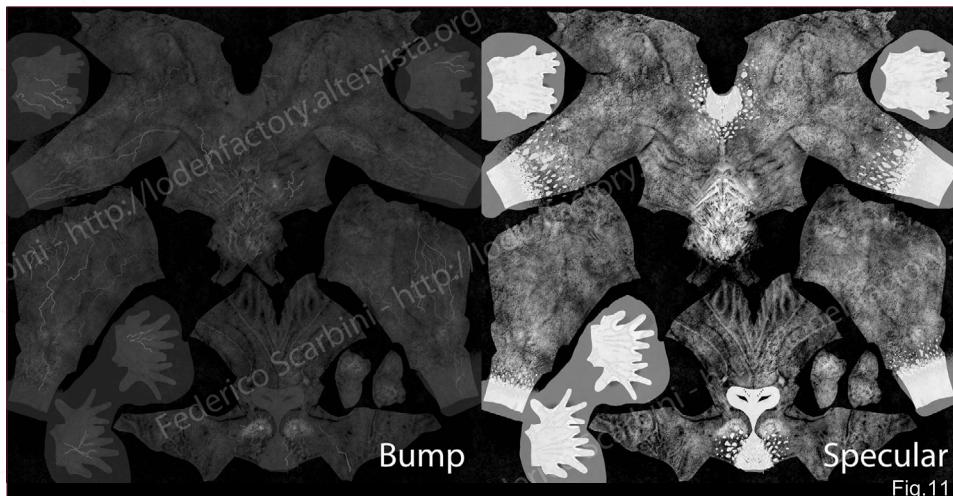
Fig.11

and one as a layer mask. You can have a large number of combinations – each one is going to give you a different result!

I experimented a bit at this stage, also looking here for a rhythm in those patterns. Finally, after playing with the blending modes of each layer (**Fig.09**), I chose the layer that worked best for my purpose. In particular, parts like the chest and the cheeks were where I needed a different kind of skin, and so I handpainted a fleshy-/bloody-looking texture, mainly using colours picked from references of meat, and darkening or brightening with the Burn/Dodge tool to mimic the flesh look I wanted.

I also used a cavity map and the displacement map baked from ZBrush to enhance the already modelled details (**Fig.10**). Creating the specular map and the bump map was very simple since I used lots of layers. Basically, I just had to understand each layer's intensity in a greyscale value, playing with Levels and Curves to get to the desired result (**Fig.11**).

Shading & Lighting

In Max I imported the lowest subdivision level from ZBrush (the retopologized mesh) already posed. I then applied the "Skin+" Mental Ray material by Håkan Andersson to the mesh.

Little Area Light to mimic the PowerBall
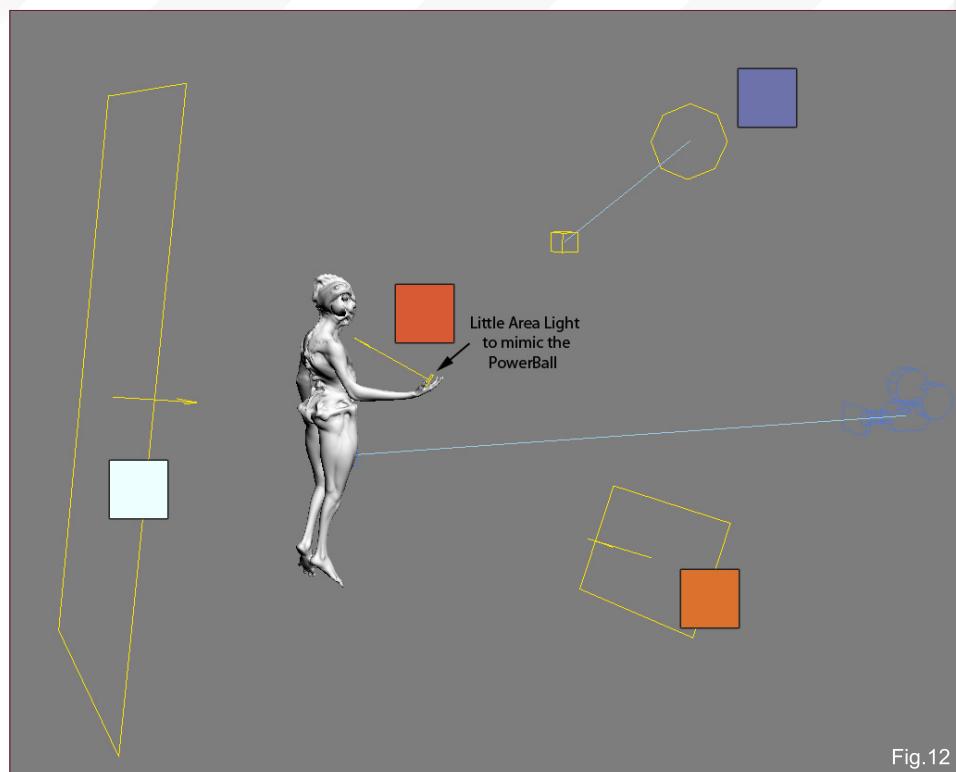
Fig.12

This combined the "fast SSS skin" shader with the nice, glossy reflective capabilities of the mia_material. Once I found the right SSS values I started the lighting phase. The result I was looking for was realistic, but with some hint of an illustration. To achieve this result I used Area lights with some typical sci-fi colouring (**Fig.12**).

Final Compositing

I firstly created a star background with a soft

transition to a deep blue, almost black colour to the sides. This was done by searching Google for "starfield" images. I then added a central line coloured in orange that was going to represent a sort of portal through which Zenoth is appearing. Over the solid colour of the line I added several images of nebulae found on the Internet, with different blending modes, to get the final glowing effect I wanted.

Starfield Background

Glowing Nebula Portal

Rendered Character plus halo behind

Fig.13

I placed the rendered image on top, adjusting Levels, Curves and Colour Balance. Between the rendered image and the background I placed a blurred copy of it. I also painted some tendrils with special brushes, and then screened everything to have a "halo" effect behind the character (**Fig.13**).

The glowing "power ball" was a bit tricky to get. I started with some handpainted smoky strokes and then added several images from stars and nebulae with different blending modes, creating the right layer mask for the fingers for each one. In the end, I used some really cool brushes created by "r0man-de" on DeviantArt.com, to get the tendrils the way I wanted, mixing them with some other handpainted tendrils just where I needed (**Fig.14**).

I hope you've enjoyed this project overview and thanks for taking the time to read it!

FEDERICO SCARBINI

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http://www.federicoscarbini.com

Or contact:

fede@federicoscarbini.com

Fig.14

"I LIKE TO CREATE THAT WHICH DOES
NOT EXIST, BUT ALSO THAT WHICH PEOPLE
BELIEVE COULD BE TRUE. ONCE I HAVE
THE DESIRE TO CREATE A FANTASTIC PLACE
THAT WILL SEEM REAL TO YOU, THE SCENE
SHOULD HOLD YOUR INTEREST FOR AS
LONG AS YOU LOOK AT IT. "

morass

making of by dzmitry surynovich

Dzmitry Surynovich shares how he went about creating this wonderful

image using 3ds Max.

morass

Created In:

3ds Max, VRay, OnyxTree & Vue

INTRODUCTION

I like to create that which does not exist, but also that which people believe could be true. Once I have the desire to create a fantastic place that will seem real to you, the scene should hold your interest for as long as you look at it. In the given article, I will tell you about the most important points of creating my recent picture, "Morass".

The scene began with the creation of the water and grass. Then came the texturing of the background and vegetation, and only after did I insert the animals and cocoons into the scene. During the course of creating the work, many objects were completed and altered to suite the environment of the world I wished to visually create.

MODELLING & MATERIALS

For the water I used the usual VRay Mtl + falloff for the reflection and refraction and noise in the
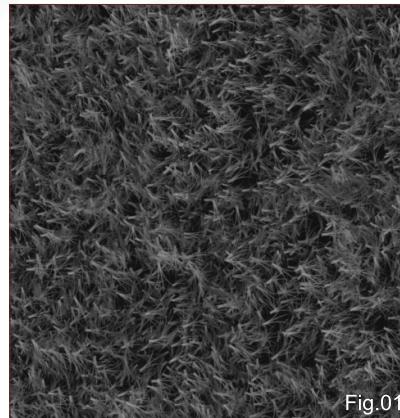
Fig.01
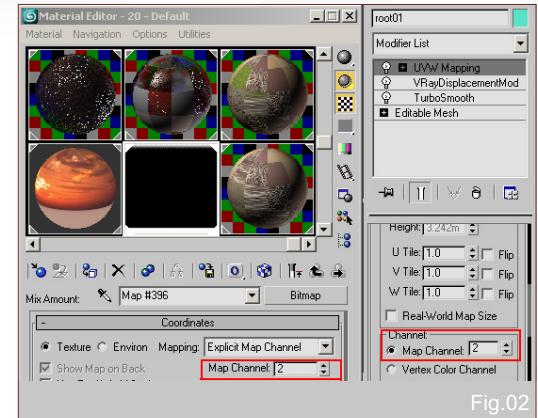
Fig.02
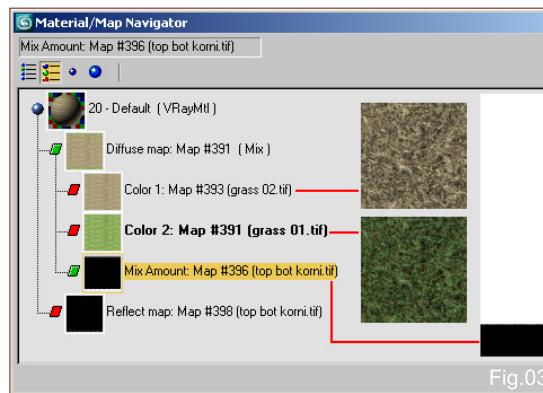
Fig.03
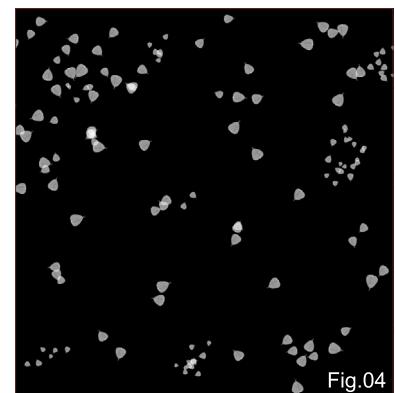
Fig.04

bump. The grass was created with the help of an ivy generator plugin. Turbosmooth and VRay Displacement modifiers with a raster texture (**Fig.01**) were used (Projective coordinates – by default). In those places where the grass comes into contact with water, it was necessary to change the colour to a dark green - the mix map on the diffuse channel was used for this

purpose. The mix map was used with the Map Channel 1 (the same channel was also chosen in the UVW Mapping modifier) (**Fig.02**). This allowed me to avoid the influence of planar mapping on a displacement texture (see **Fig.01**) and diffuse texture (**Fig.03**).

How did I create the leaves on the grass? Well, I copied the basic object, and in the viewport I removed the bottom polygons and changed the texture in the diffuse channel. A displacement modifier also helped to change the texture (**Fig.04**). Here I used planar mapping (distortions are not appreciable). To economise on resources, I removed not only the bottom but also distant polygons.

All plants were created in the programme, Onyx Tree and the materials for them were made in 3ds Max. I transformed some of the plants in VRayProxy. However, I found the landscape to be somewhat boring and so decided to add some animal life to the scene. The sample I used was a terrestrial being, Phalangium Opilio. From an old artwork I made a simple model
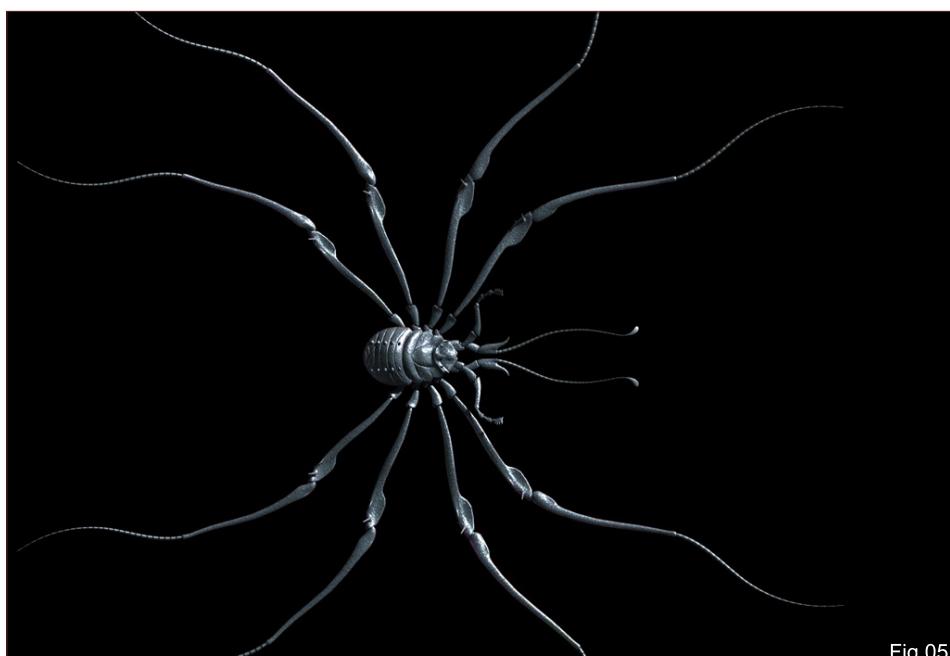
Fig.05

of the spider (using the method of polygonal modelling; the feelers were created with the help of the loft tool) which I was able to re-use for this project (**Fig.05**). The finished model has added segments, added thorns, and increased hair (by means of the Hair and Fur modifier). Hair was then transformed into a grid. Before giving the creature a desirable pose, I moved the affected pivots to joints and adjusted the links (**Fig.06**). Here is the result (**Fig.07**).

I lowered the horizon line in the basic scene file and inserted the model of the spider monster. I chose a sky light for my basic illumination, and the character was kept dark so that it displayed an accurate contour. The lonely travelling monster is on the boundless bogs of a distant plane, but still looked boring. So I decided that I'd need to show something more interesting…

I'd like to state here that in this work the simplest texturing methods were used (no Unwrap UVW, just UVW Mapping). All textures for the main characters were procedural using SSS (**Fig.08**).
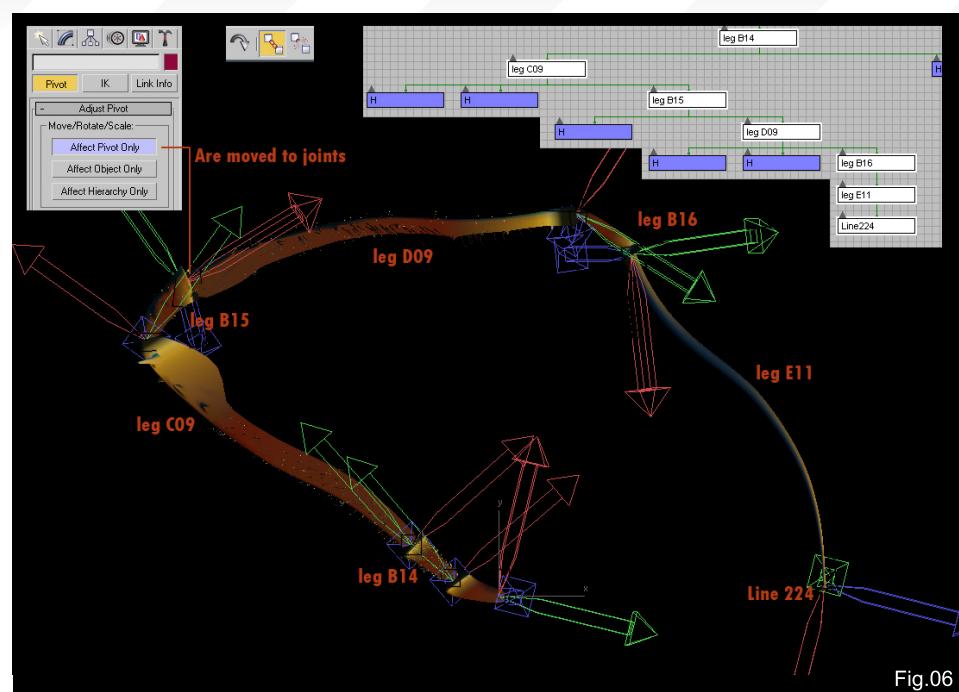
Fig.06

The centipede was created very quickly (using the method of polygonal modelling). I created a spline, repeating its position, and then took advantage of the Path Deform modifier (**Fig.09**). I usually use this modifier for snakes. The cocoons in the scene were created as shown in

Fig.10. For the textures on the egg it was necessary to work in Photoshop (**Fig.11**). It turned out to be a very difficult material, so I will just say that I used VRayBlendMtl with SSS to keep things simple.
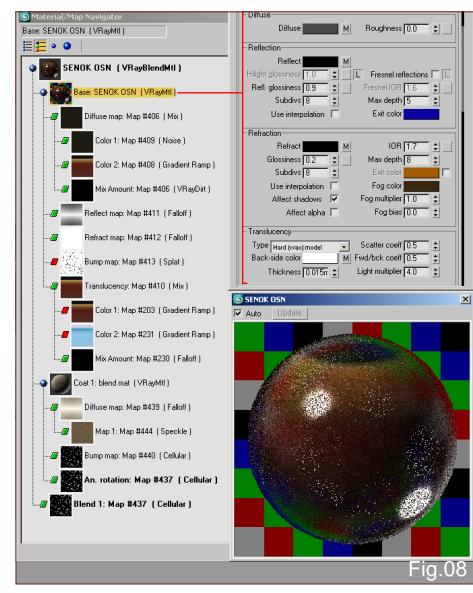
Fig.08

Fig.07

LIGHTING

The lighting was very simple: only one texture (**Fig.12**) on a geosphere ("Sky"). But for the reflections, this texture was not suitable so I used the sky material, VRayOverrideMtl (**Fig.13**). It allowed me to use two different materials for the reflection and illumination on one object ("Sky").

The textures for the reflection and illumination were created in Vue, with the minimum quality. The final texture for the background was created

Sphere - Edit Poly - MeshSmooth - UVW Mapping - Edit Mesh.

Loft - Edit Poly - UVW Mapping - Bend - MeshSmooth - Edit Mesh

Hair and Fur - Edit Mesh

ivy_generator - Edit Mesh

Fig.10

Edit Poly

Elements

Edit Poly

Path (spline)

Edit Poly - - Path Deform Binding

Wire

12 - Default (VRayMtl)

Reflect map: Map #1397 (Falloff)

Map 2: Map #1406 (Splat)

Bump map: Map #1406 (Splat)
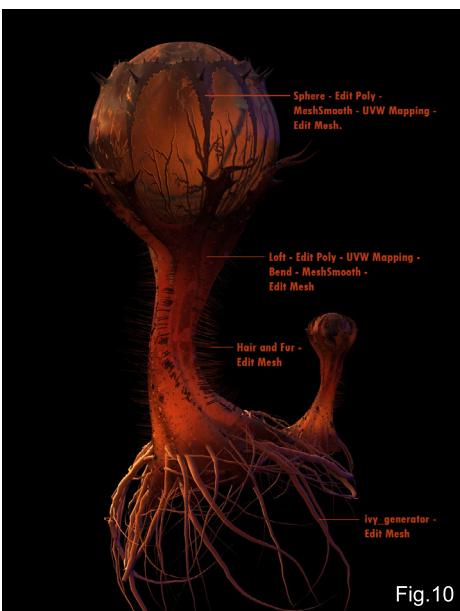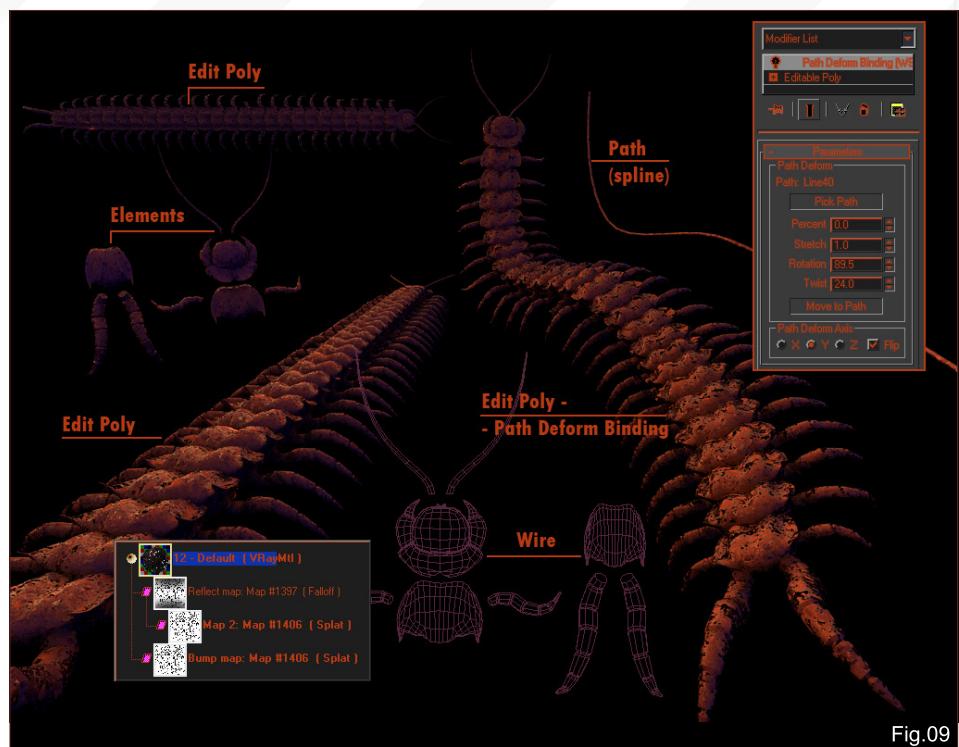
Fig.09

with the maximum quality. I then finished the textures in Photoshop (for example, some dark blue stains on a texture (see **Fig.12**) were necessary for the creation of dark blue reflections from the spectator). This texture was used for the background (**Fig.14**).

I switched off Visible to Camera in the properties of the geosphere ("Sky"), so that the background

was visible through it. I then developed materials for the scene objects in a separate file with the same lighting as in the main file. In this additional file there were only objects necessary for lighting and those developed with a material in mind to speed up test renders.

POST-PRODUCTION

I added contrast to one of the cocoons in the
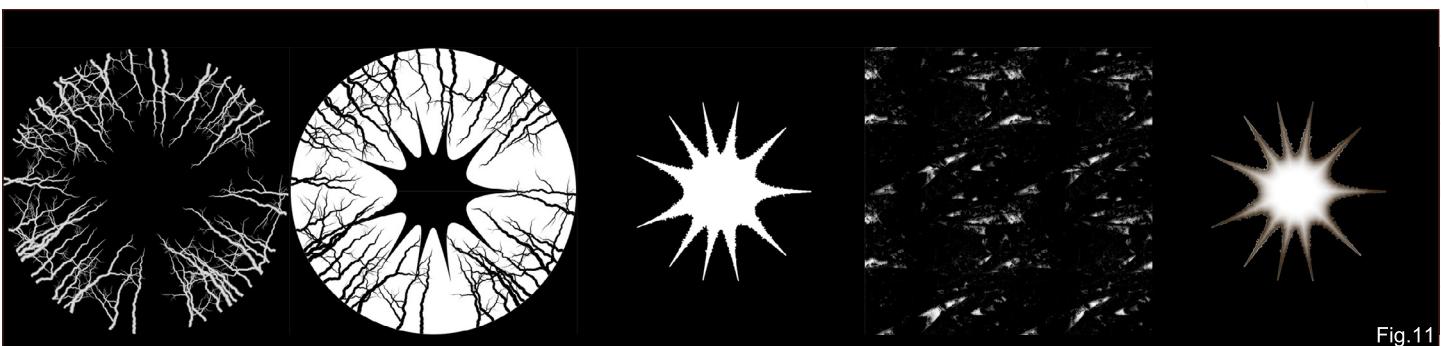
Fig.11

Fig.12
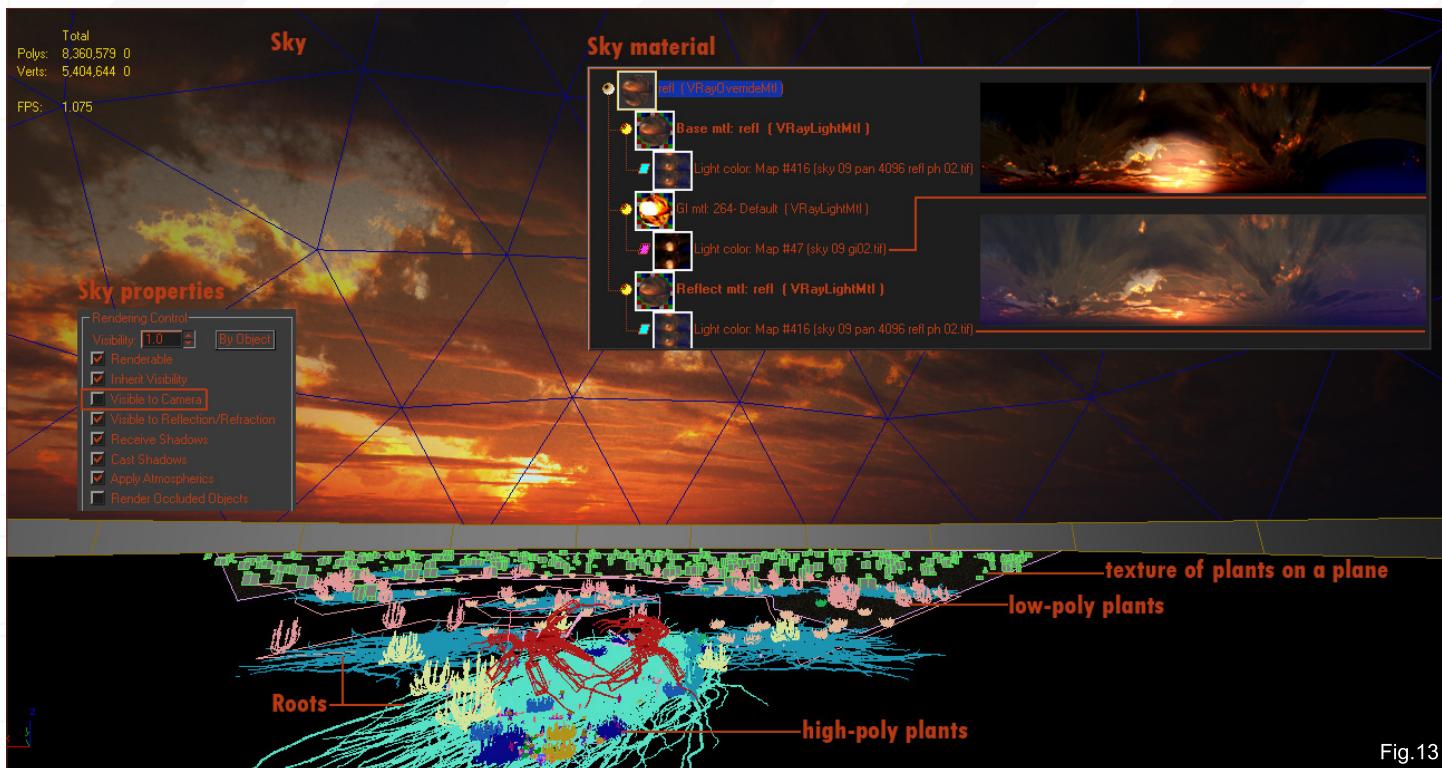
Fig.13
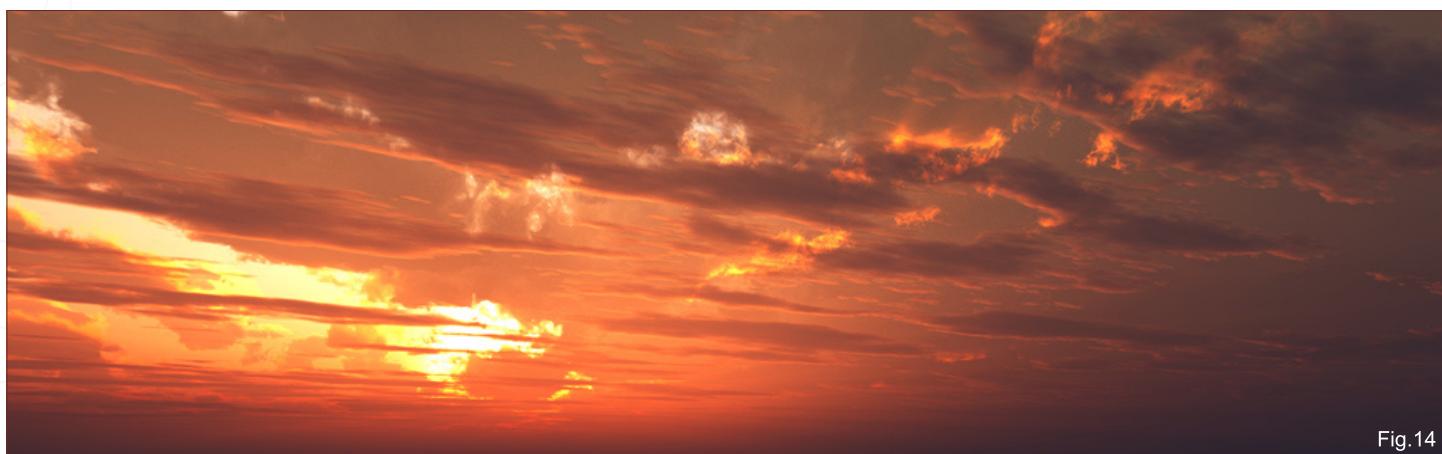
Fig.14
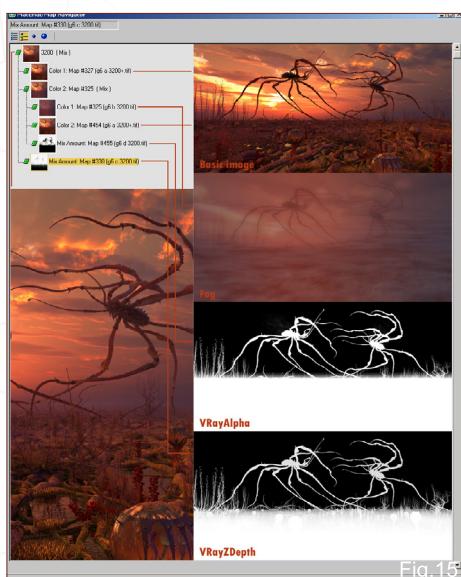
Fig.15

foreground, and dipped the bright lights in the distance (in Photoshop). Experiments with Max's fog failed right from the very beginning of the work, and so I decided to render VRay Zdepth as a render element. To make sure I didn't lose the sky in this fog, I also created a VRay Alpha. The fog image layers were then processed in Photoshop and then combined back in Max (**Fig.15**).

FINAL THOUGHTS

I have tried to cover the most important aspects of the creation of my artwork in this article – I apologise if some think that I have not explained things enough. Have a look at the final image again and you'll see that there is nothing too difficult going on here – just time, and a love for art. I wish you all the very best success. Thanks for reading.

DZMITRY SURYNOVICH

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The following shots of the "One Day Flower" book pages are featured here in full-resolution and can be read by zooming in...

One Day Flower
By By Krzysztof Nowak

Introduction
My illustration, "One Day Flower", was made for a 3D competition on a Polish CG portal, Max3d.pl. The subject title was "Small is beautiful". I sought to create an image which would open the viewer's imagination and allow them to return to the wonder years of childhood.

References and Research
I started with a list of objects I knew I would need, and for this I turned to Google. I looked for imagery of specific objects to get an idea of how they were built and what kind of materials I would need. I found this stage critical as it saved a great deal of time later on!

Modeling Characters
The Tim Burton movie, Corpse Bride was my main inspiration for the character design. I chose this particular style because I
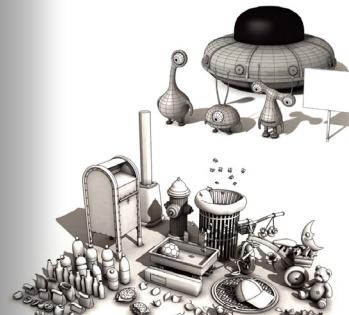
knew I wanted to make the scene very crowded, and this style enabled me put a lot of figures in the scene whilst not overcomplicating the image (Fig.01).

Modeling Objects
I chose to give the street a very "American" feel, because American street "furniture" and architecture are instantly recognizable to anyone. Most of us grew up with some aspect of American culture in our lives, and I felt it would make the image more universal and understandable for everyone.

I took great care on some of the eye-catching recognizable props, such as the fire hydrant and mailbox, and to save time on the less important props, such as the leaves or cans, I simply instanced them and then used modifiers, such as "Bend" and "Twist", to add uniqueness. This helped create the large number of props I needed (Fig.02).

For the small aliens in the trolley, I was inspired by the Moby video, In This World and I put them in the image of One Day Flower to symbolize the message from the video clip (Fig.03).

Fig.01
Fig.02
Fig.03

260   CARTOON   CARTOON   261

To make the curb edge, I utilized ZBrush. I modified a concrete photo into an alpha texture (Fig.04) which I then used in ZBrush as an alpha brush for painting cracks. I covered the model with this texture, and then, to break up the repeating uniformity, added details such as hollows and smoothness on a second layer (Fig.05).

From this I created a displacement map in ZBrush. Using this as a base image in Photoshop I adjusted the levels so I could add extra shading and a sandy color to the cracks. As a finishing touch, I took another image into Photoshop and on top of this added concrete layers with some transparency and Multiply blending modes (Fig.06).

Lighting and Composition
The lighting and composition was the most critical stage of the whole process. To help me achieve the result I wanted I used basic "stand in" models to create a simplified 3D sketch of the final image. This helped me to concentrate on the lighting and composition in a way I couldn't with the final models.

It was always my intention to set the composition at a "child's eye" level; I felt this kind of composition would also help to draw the viewer into the image and it also saved me a great deal of time as I didn't have to model the faces or heads of the adults – I had only to play a bit with the clothing and fabrics to add variety to the adult characters. It also helped me to convey the message that children exist in a different world to their "boring" adult counterparts.

As a temporary measure for the adults, I simply rescaled kids and made a few simple modifications. At his stage, it all looked very raw, but this helped me focus on the lighting and compositional aspects of the image (Fig.07).

I went for a simple lighting set up; I used one directional light for the bright contrast areas to simulate the sun and also used a sky light as my fill light. To highlight the points of interest in the scene I carefully positioned a simple plane containing holes to act as a "gobo". This helped me to direct the light to where I wanted it. Then, by a process of trial and error, I adjusted the holes to give my image bright light in the key areas of focus (Fig.08).

Then, when I was satisfied with the lighting and composition, I started replacing the raw models with the more finished versions (Fig.09).

The last stage was adding finishing touches to the adult models and placing a few small objects. The grass and leaves were added to create movement and add life to the image (Fig.10).

Textures
For the creation of textures I used Photoshop, supported by ZBrush. For this stage I also have my own library of images. These are often used as a base for most of my textures. Most of my textures were created in four steps (Fig.11). In this example, I was creating a metal texture.

1. **Base layer** – a basic fill texture to use as the main basic surface – clean metal
2. **Details for base layer** – a rust texture with mask
3. **Second layer** – a paint layer; for this I use my own custom brushes
4. **Details for second layer** – a final pass of dirt and rust

A few of the textures were simply photos with minor modifications, e.g. door and wall texture (Fig.12).

Rendering
To render the final image I used V-Ray. This was for two reasons: its speed/quality ratio and because I understand this system well. I wasn't overly concerned with photorealism so I used very low settings for the global illumination, just enough to get the effect I wanted. The outline cell shaded effect was achieved with the V-Ray Toon atmosphere effect.

Post Production
I already had a good idea of the "tone" I wanted for the final image, so most of my post production in Photoshop was spent on color correction (Variations + yellow + red) (Fig.13) to bring warmth to the color. I also wanted to soften the light so I used a few variations of light layers with soft light mixing (Fig.14).

Conclusion
I was very satisfied with the final result, and despite the enormous amount of time I spent on the image, I felt the result was very successful. The support of others also kept me motivated and inspired throughout the process. I learnt a great many things from the process and, although there are many things I might do differently the next time, every image is a learning process. Next time, I might explore different lighting and rendering techniques, but I'll keep that for my subsequent projects.

Fig.04
Fig.05
Fig.06
Fig.07
Fig.08
Fig.09
Fig.10
Fig.11
Fig.12
Fig.13
Fig.14

262   CARTOON   CARTOON   263

3DC

Here is what's in next months issue of 3dcreative

INTERVIEWS
Till Nowak
Viktor Fretyan

TUTORIALS
NEW - ZBrush 'Manimal' Creation Series:
Part 1 - Bird-Man
Creating a Gothic Church Interior
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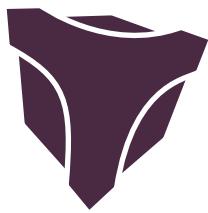
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3ds max

Gothic Church
Interior Creation

This series will provide an overview of the principal techniques used to create a gothic interior based upon a concept painting, along with a tutorial on the process of sculpting a gargoyle character in ZBrush. Key methods covering modelling, texturing, lighting and rendering will be outlined over the course of the series and culminate in a chapter on post production and how to composite numerous render passes into a final image.

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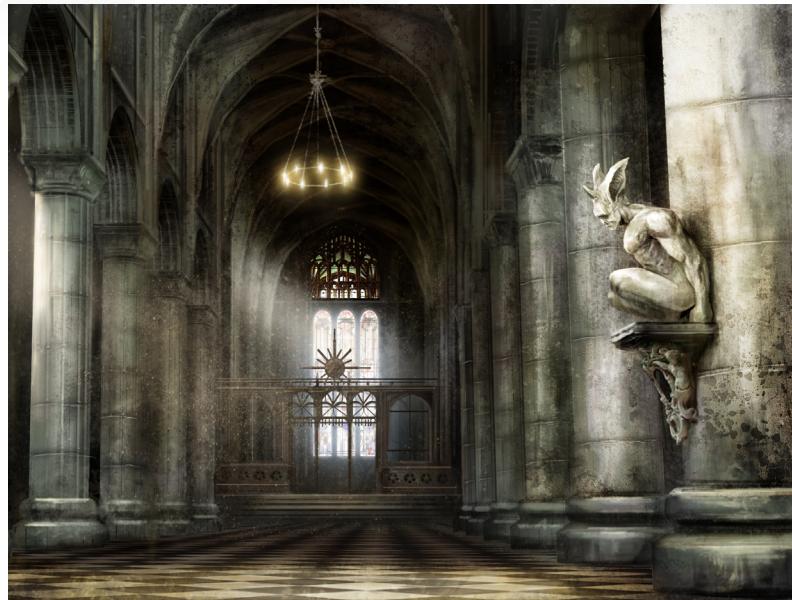DOWNLOAD HERE

Gothic Church
INTERIOR CREATION
## PART 4: LIGHTING & RENDERING

Created In:

3ds Max

PART 4

In this forth part of the tutorial we'll set up the scene for the final rendering. We'll end up having different passes for compositing. First of all, let's take care of the light rig.
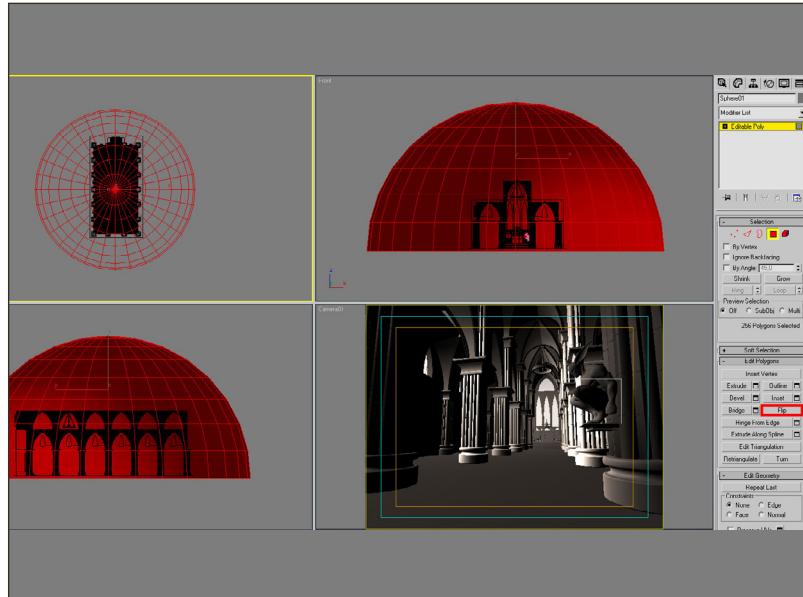

Fig.01

Create a Sphere mesh surrounding the whole scene. Delete the lower half of the sphere and select all the remaining polygons (**Fig.01**).

Fig.02
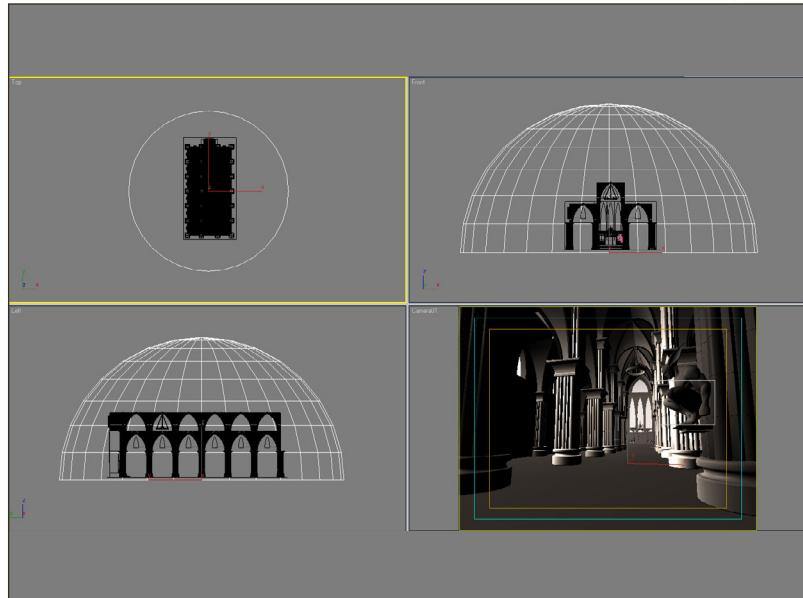
Flip the polygon selection using the Flip command in the Editable Poly panel (**Fig.02**).
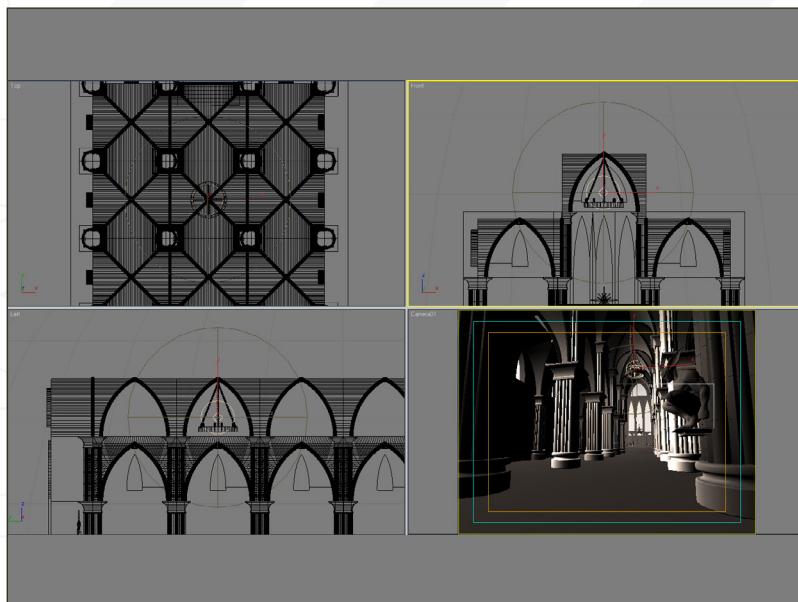
Fig.03

Now create an Omni light and position it above the candles, as shown in **Fig.03**.
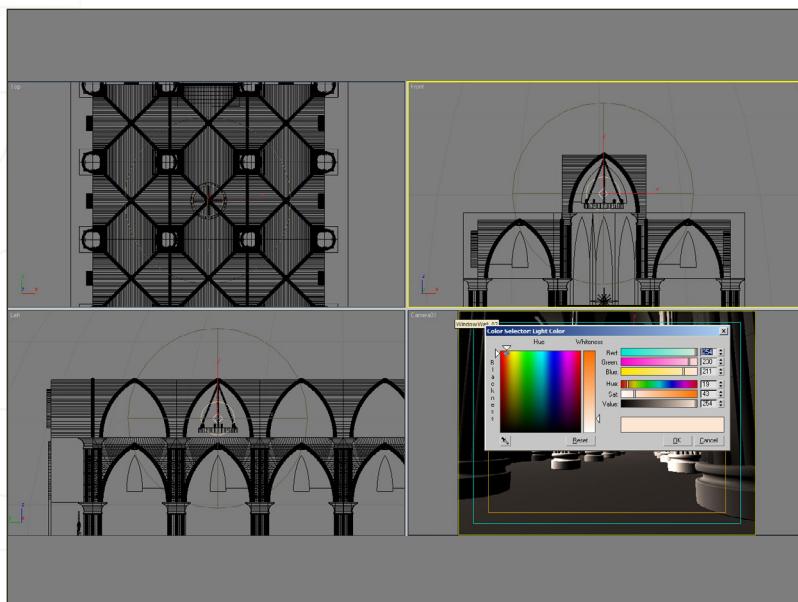
Fig.04

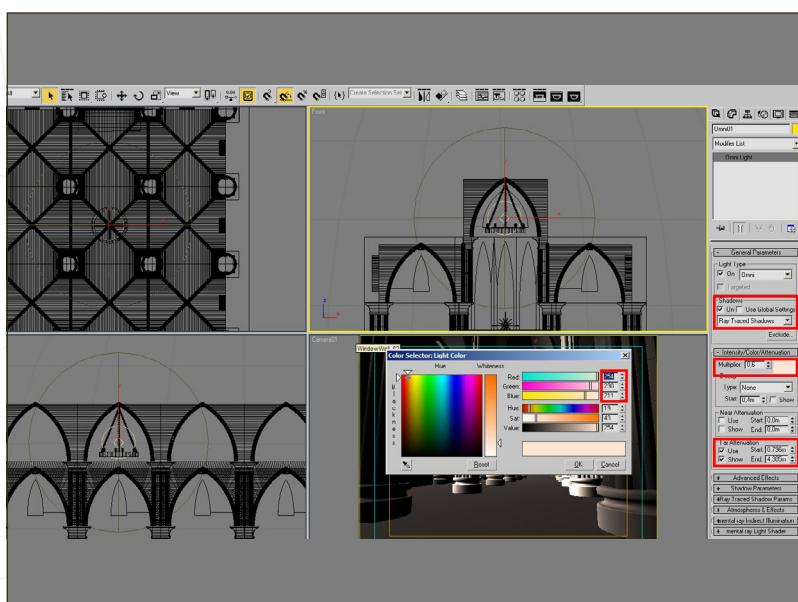Assign a pale orange (almost white) colour to the Omni light (**Fig.04**).

Fig.05

Enable RayTraced Shadows for the Omni light, set its Multiplier to 0.6 and also enable Far Attenuation Use and Show, setting its parameters to about 0.7 and 4.3 (**Fig.05**).

Now for the most important light in the scene. Create a new mr Area Spot light and position it exactly as shown in **Fig.06**. This light will illuminate the gargoyle statue and will largely contribute to the overall look and mood of the final rendering, so try to be precise while positioning it and setting its parameters. You can just copy the values for the light's body and target positions from **Fig06**.

Fig.06
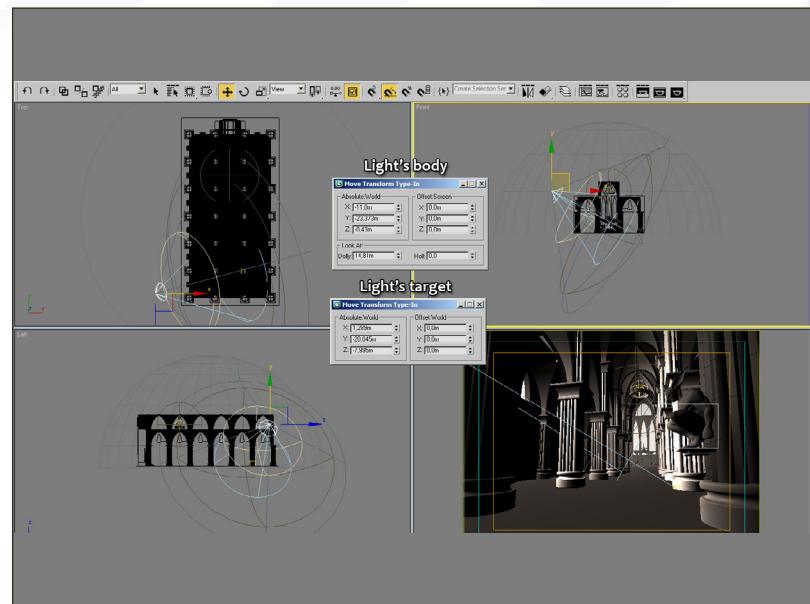
Make sure that Raytraced Shadows is enabled for the spot light, and set its colour to a pale yellowish shade. Set the Multiplier value to about 1.2 and the Far Attenuation Start / End to respectively 10 / 20. Also, make sure to set the Hotspot and Falloff values to about 50 and 100 (**Fig.07**).

Fig.07
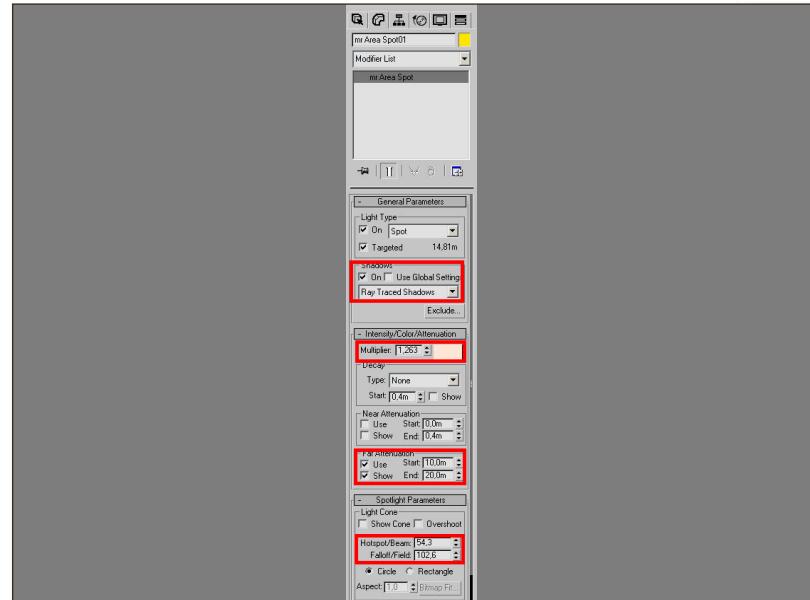
Now duplicate the spot light and position it to make the light pass through the other window. You can copy the light's parameters from **Fig.08**.
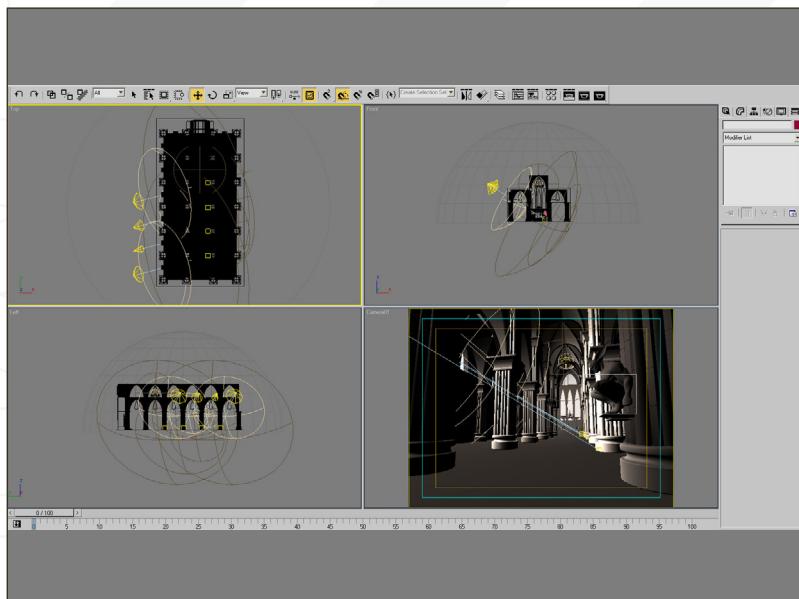
Fig.08
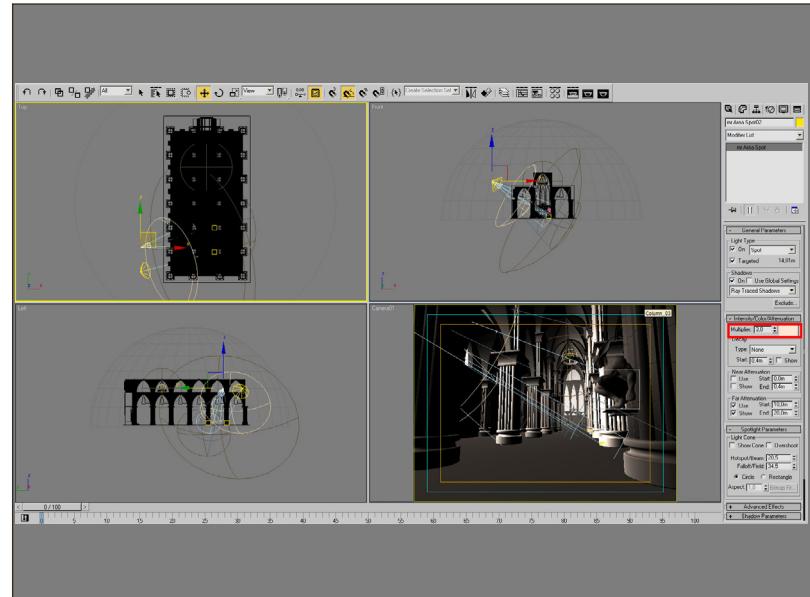
Fig.09

Keep duplicating the spot lights and positioning them for each window (**Fig.09**).
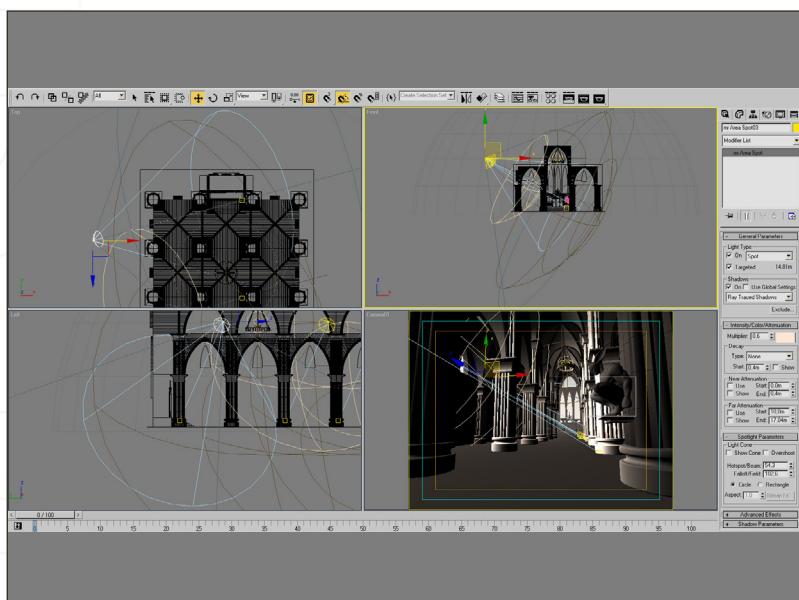

Fig.10

The last spot light is quite important, too, since it must light the altar zone of the church. Copy the position and the parameters from **Fig.10**.
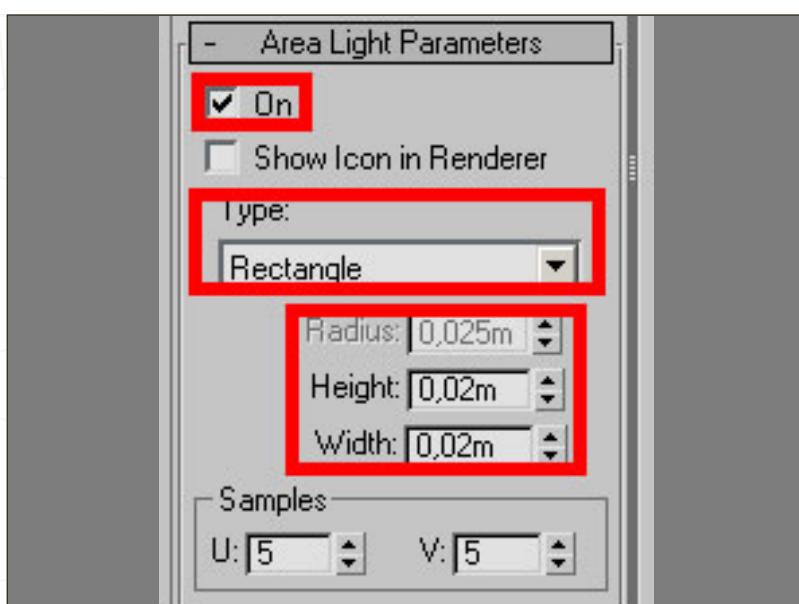

Fig.11

Go back to the first spot light (the one near the gargoyle area) and make sure to set the Area parameters as shown in **Fig.11**. You can use the same values for all the other spot lights, it's just up to you and the final look you're after (**Fig.11**).

Now that the lights are done, we can create a new Mental Ray shader for the floor to add some realism. Mental Ray will just render any standard 3ds Max shader, but if you're looking for some advanced effects, you need to use Mental Ray proprietary shaders. In **Fig.12** you can see the shader used for the floor. Create a new Arch & Design type shader, assign the same texture you were using for the standard shader (colour, specular and diffuse) and then set the shader's parameters just as in **Fig.12**. This will create glossy reflections for the floor. You can do the same with any other material in the scene (for example, the columns), but keep in mind that glossy reflections are heavy for rendering times.

Now let's take care of the Indirect Illumination setup. Open the Rendering tab (F10) and enable Final Gather in the Indirect Illumination tab. Set the preset to High and increase the Multiplier value to 10 and the Diffuse Bounces to 5 (**Fig.13**) .
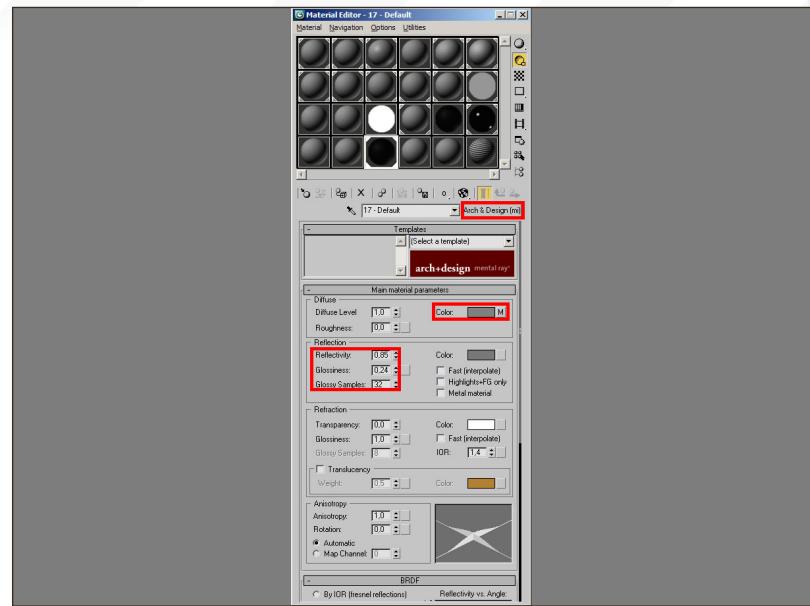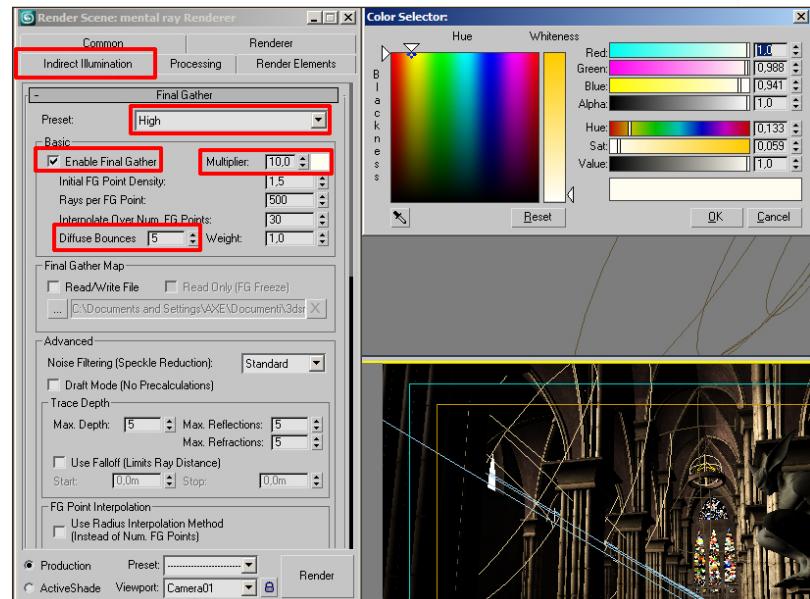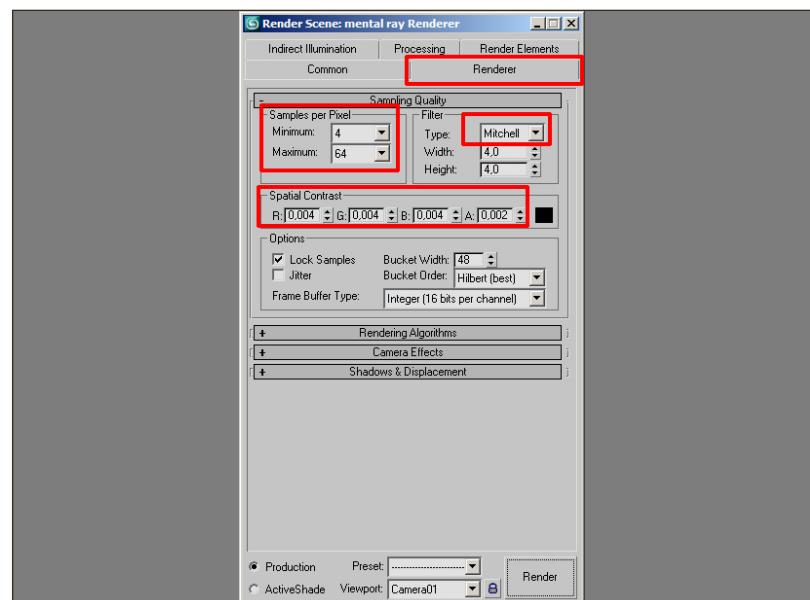
Switch to the Renderer tab and set the Antialiasing values as shown in **Fig.14**. Don't forget to set the rendering picture size in the Common tab to any size you want.
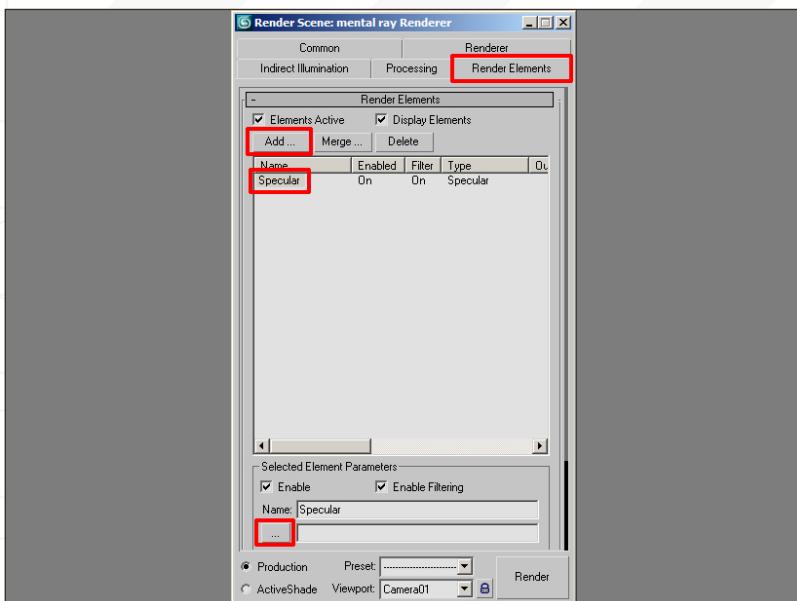
Fig.12

Fig.13

Fig.14

Fig.15

Now since the rendering will take a while to complete (the Indirect Illumination and AA parameters were set quite high in quality) we can also any other passes that we need, so that all the rendering tasks will be at once. Go to the Render Elements tab and add a Specular pass to the list. Click on the icon with the three dots and set a file name for this pass (**Fig.15**) .
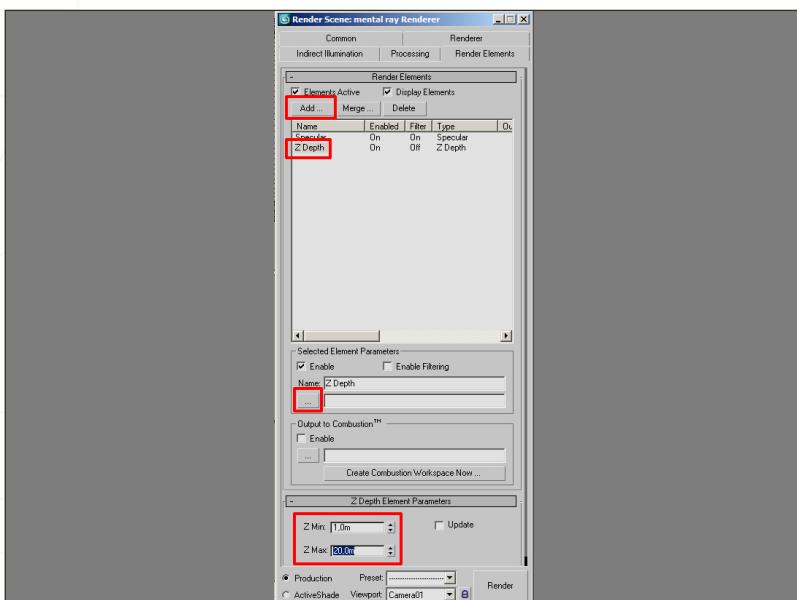

Fig.16

Repeat the last step, but this time add a Z Depth pass. Set the file name for this pass too (**Fig.16**).
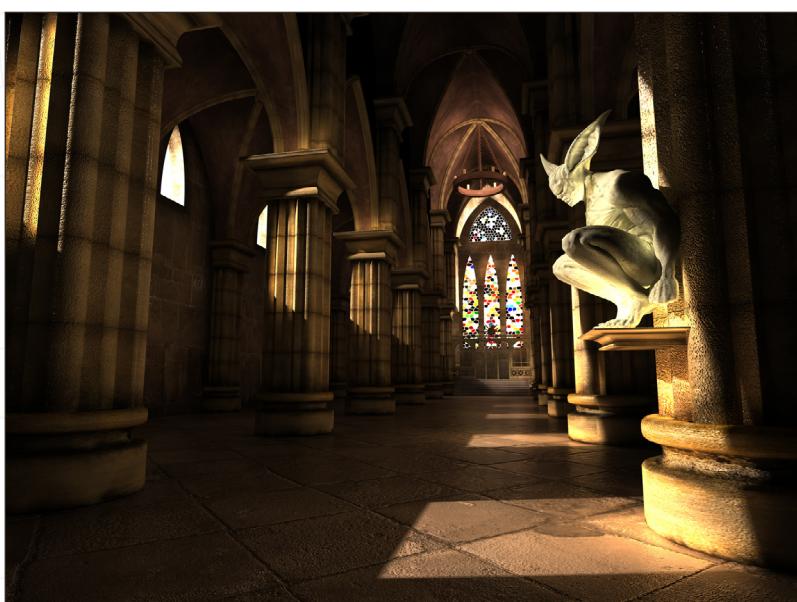

Fig.17

In **Fig.17** you can see the final colour pass.

Fig.18 shows the Specular pass.

Fig.18
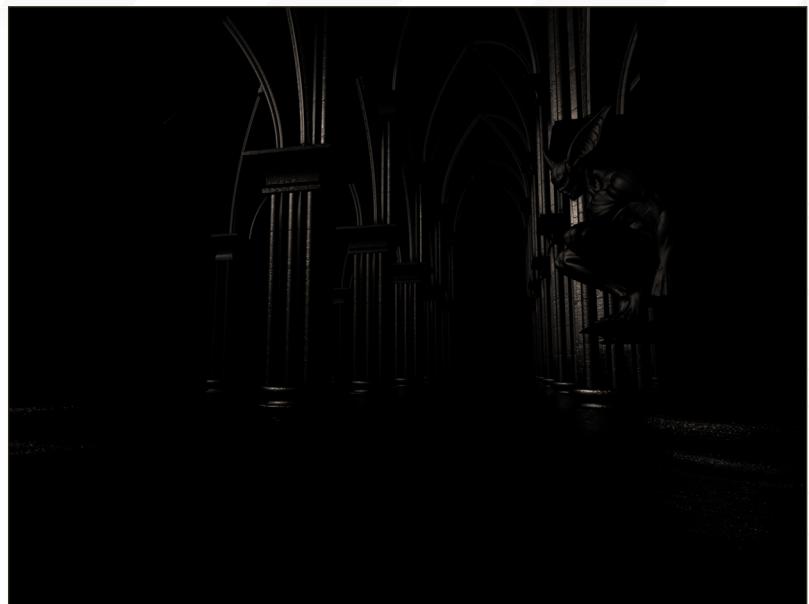
Fig.19 shows the Z Depth pass. Now we have the three major passes done.

Fig.19

We need a couple more passes for compositing. Let's move on with the Ambient Occlusion pass. Create a new Mental Ray shader and assign a Ambient/Reflective Occlusion shader to the Surface slot. Assign this material to every object in the scene: Select All (ctrl + A) and assign the material to the selection. Set the AO shader's parameters as in **Fig.20**.
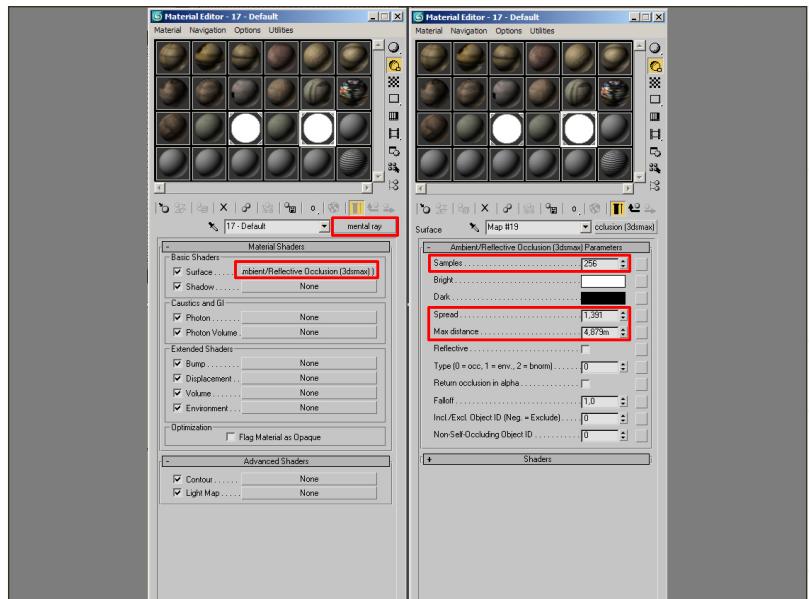
Fig.20

Fig.21

Here you can see the final AO pass (**Fig.21**).
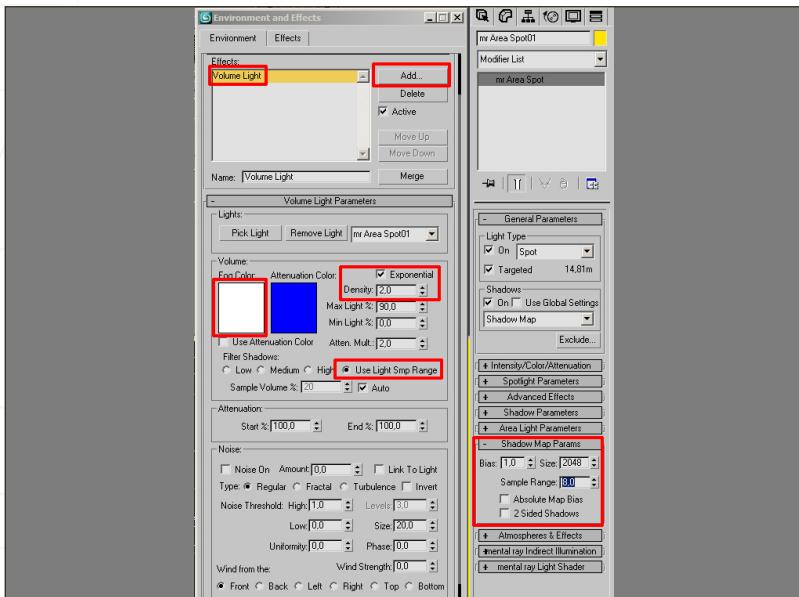
Fig.22

The last render pass we need is the Volume one. Go to the Environment section and assign a new Volume Light effect. Pick the first spot light as a source and copy the parameters for the volume effect from **Fig.22**. Don't forget to change the shadow type from RayTraced to Shadow Map, and set the Shadow Map parameters to 2048 for the Size and 8 for the Sample Range.

Fig.23

The final Volume pass can be seen in **Fig.23**.

GOTHIC CHURCH
INTERIOR CREATION
PART 4: LIGHTING & RENDERING

LUCIANO IURINO

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CINEMA 4D

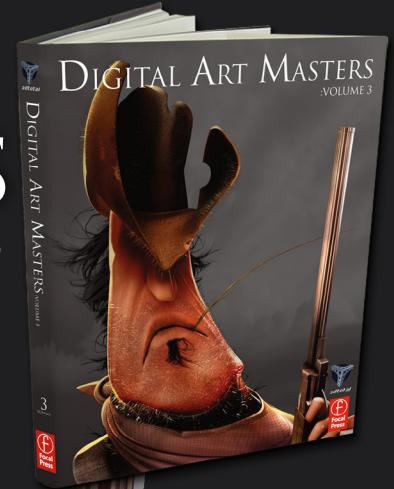# Gothic Church
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Gothic Church
INTERIOR CREATION
PART 4: LIGHTING & RENDERING

Created In:

Cinema 4D

PART 4

In this chapter we will look at how to illuminate the Gothic church scene by using Global Illumination (GI).

First of all, set the parameters of the GI for each material. You can find the GI settings on the Illumination page of the Material Editor. So, select all the concrete materials and in the Illumination tab control, change the parameter Model to "Oren-Nayar". This material is opaque because it absorbs the light much more than others. Use "Blinn" for the metal material and for the glass and wood materials use "Phong", as seen in **Fig.01**.

In **Fig.01** you can also see the other GI settings:
Generate GI > Strength - enable this option if the material should reflect or refract GI onto other objects. The Strength value goes from 0% to 10,000%; 100% represents normal strength.
Receive GI > Strength - if this is enabled, the material will receive GI
Receive GI > Saturation - this defines the saturation of the GI light received by the material

Leave the parameters of the GI with the default settings; we will change them after, if needed.

As I said at the begin of the chapter, we're going to use Global Illumination (also called GI) in order to improve the photorealism of rendering, but what actually is Global Illumination?

Suppose you have a scene illuminated by a light. If you make a render, the rendering will calculate direct lighting only, thus the objects will receive the light directly from light source. If you enable the GI option, the rendering will
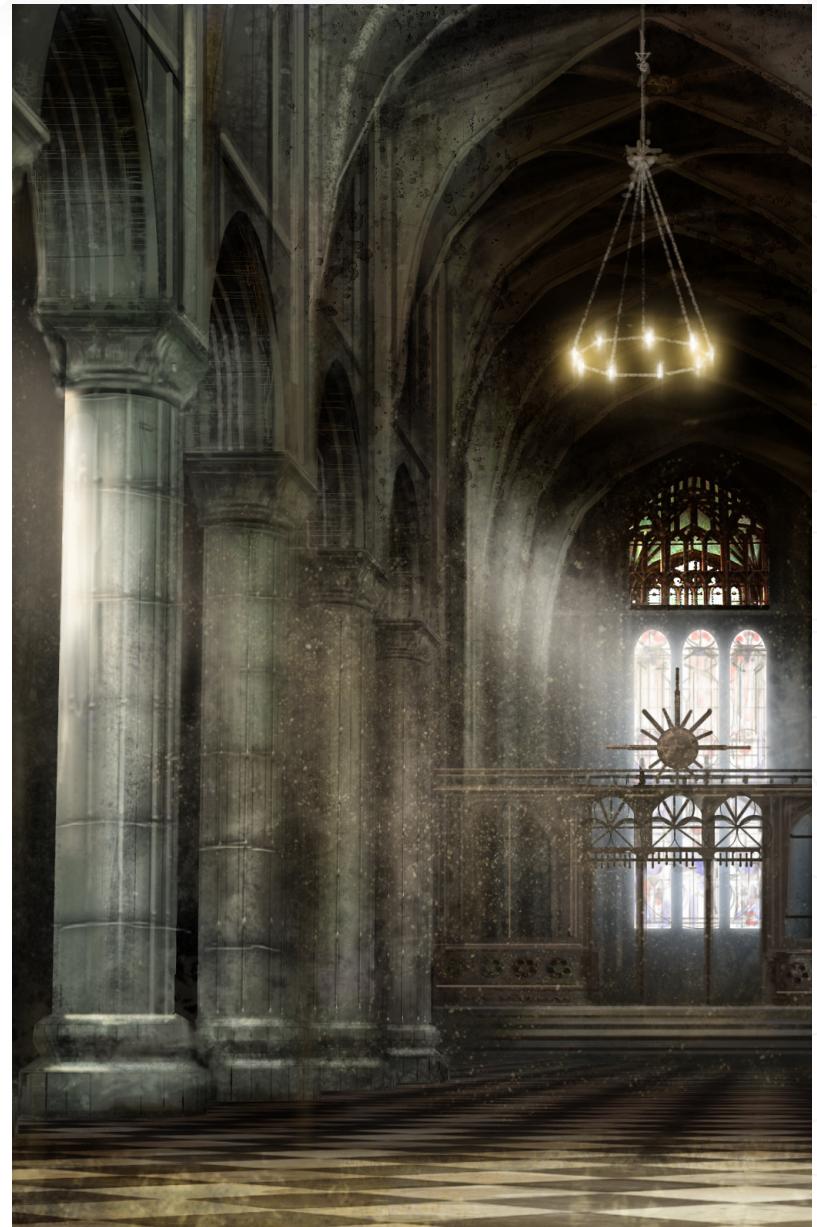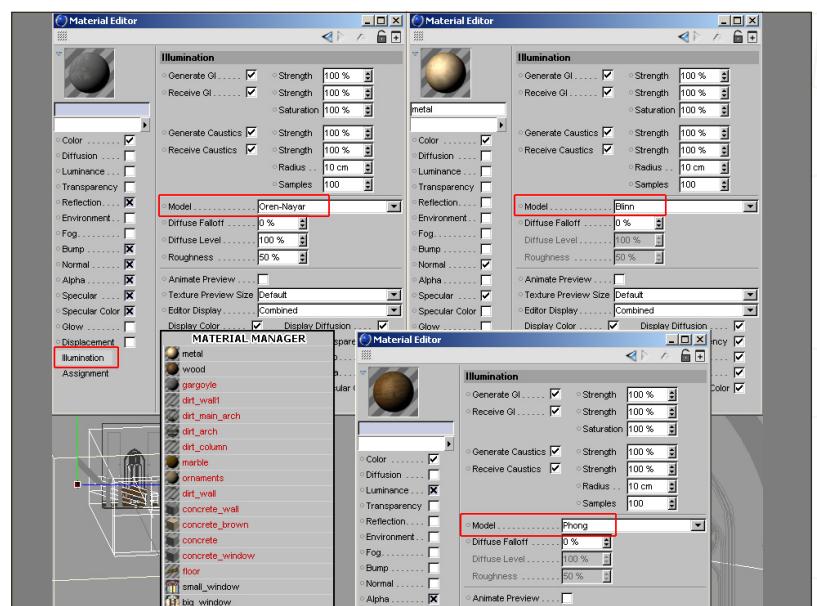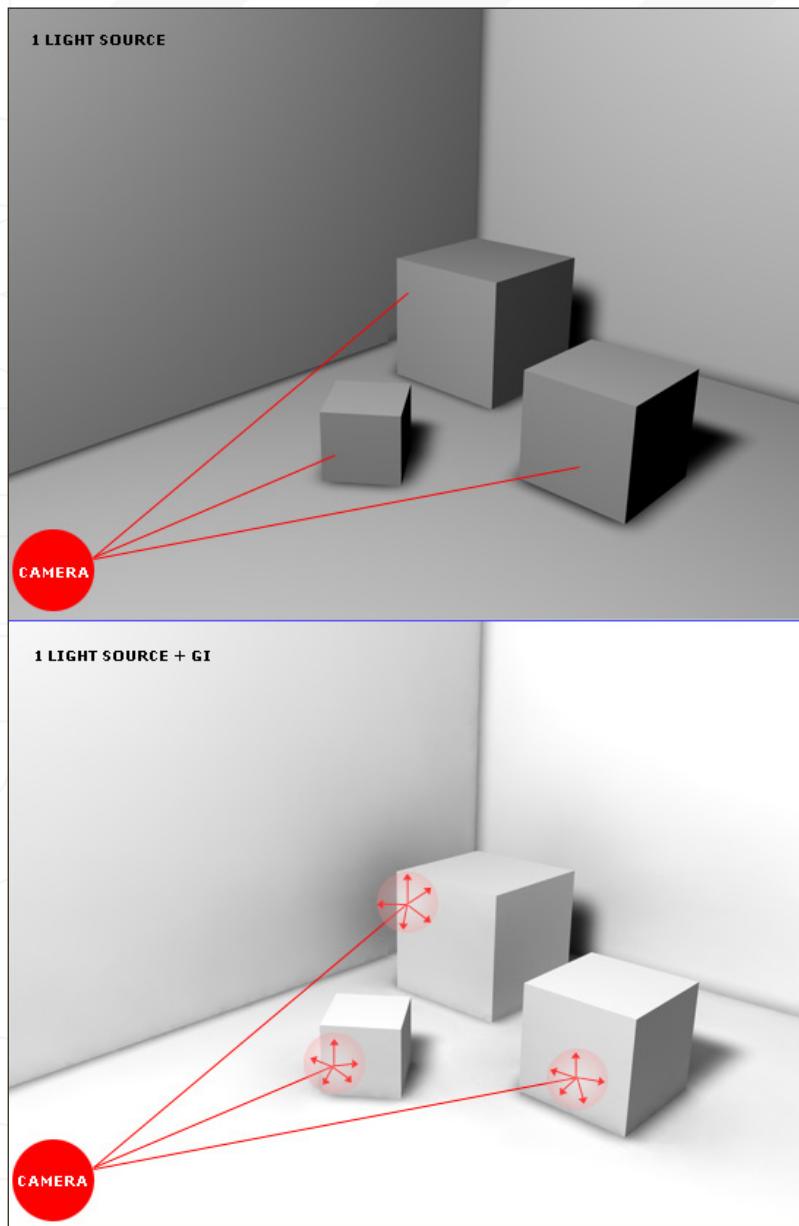

Fig.01

Fig.02

Fig.03

add indirect lighting to the scene. Indirect light is light reflected onto an object by other objects (in nature almost all objects reflect light).

How does it work? First, rays are sent from the camera into the scene. A shading point is created at each point where a camera ray hits an object's surface. Next, a number of special rays, called stochastic samples, are sent out from each shading point. The stochastic rays are sent in various directions, spreading out from each shading point in the shape of a dome. Each time a stochastic sample hits a surface, a new dome of stochastic samples is sent out from that point. This second generation of stochastic samples may in turn trigger a third wave of stochastic samples and so on. This chain reaction of events continues with further generations of stochastic samples created until a limiting factor has been reached, as specified in the GI settings. At this point, the various surfaces hit by the stochastic samples are taken into account to calculate the indirect light for the shading points. (The shading points are those points hit by the camera rays; the points that created the first generation of stochastic samples). Finally, the values for the shading points are interpolated to calculate the indirect light for each image pixel. At the top of **Fig.02** you can see a render without GI, while at the bottom you can see how a render with GI works.
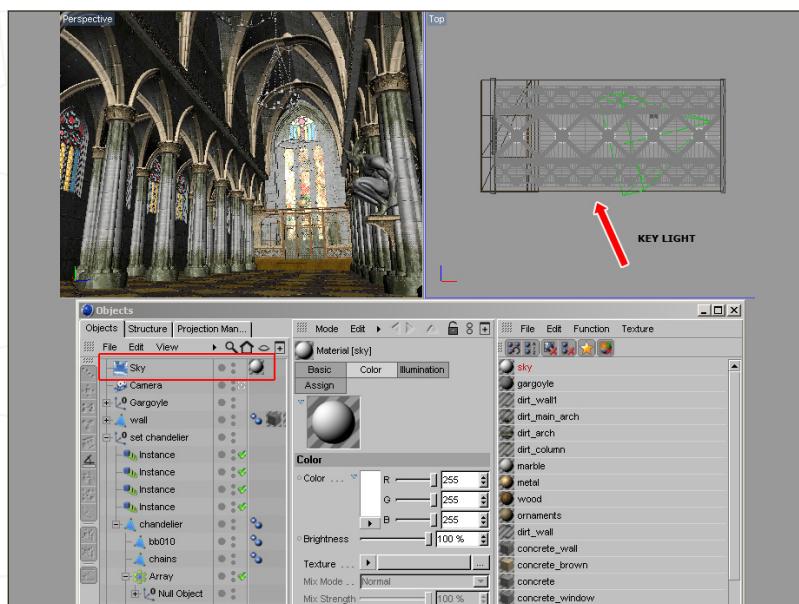
Returning to our scene, we have to choose where to position our light source, I decided to place it to the south of the church, as seen at the top right of **Fig.03**.

The next step is to add a sky object and assign it a material that has only the colour channel enabled. Choose white as the colour of the material, as shown at the bottom of **Fig.03**. You can find the sky object under Objects > Scene. The sky object will help to diffuse the light and it's for this reason that we used a white material, - as we all know, white reflects the light.

Next, we want to insert a light into the scene and place it as seen at the top of **Fig.04**,

directing it onto the gargoyle statue. To create a light, choose the desired light from the Objects > Scene menu. The task of this light will be to generate an ambient light. I chose the "Square Parallel Spot" as the type of light. Its colour is a bright yellow and its intensity has a value of 200%. I also chose the Shadow Maps (Soft) with a Resolution of 250x250 as the type of shadow, as you can see in **Fig.04**.

The difference between the types of light (Omni, Spot, Area, etc.) is in the way the rays are emitted from the source. For example, an Omni light sends rays in all directions (it acts like a real life light bulb), while a Spot light cast it's rays in just one direction and so on. The Spot light source can project a round or square cone of light, while Parallel Spot lights don't have light cones but they cast the rays along cylinders. For this reason let's go with a Square Parallel Spot.

In the Shadow page, under the properties of the light object, you will find the settings for the shadows: Density, Color, Transparency, etc., as seen in **Fig.05**. The most important settings are Resolution, Sample Radius and Bias. A shadow map is a greyscale picture of the scene as viewed from the light source; this picture contains all the objects lit by the light source. The parameter Resolution allows us to choose the size of the greyscale picture: 250x250; 500x500, etc. We can also insert a value less than, or greater than, the default values. The Resolution parameter influences the amount of memory used: the higher the resolution, the larger the amount of memory that will be used. With a Spot light, you can provide a non-square shadow map by entering a value for Resolution Y. The Sample Radius parameter defines the shadow map accuracy. The Bias value determines the position of the shadow (the distance between object and shadow).

The others type of shadows are Raytraced (Hard) and Area shadow. Hard shows, as the name suggests, have a sharp edge while Soft shadows have a faded border. You can see the difference between these two
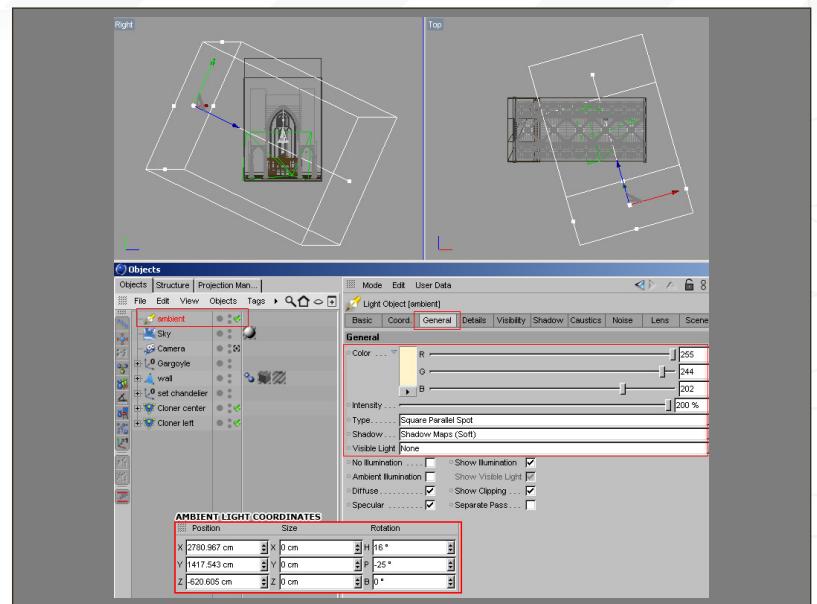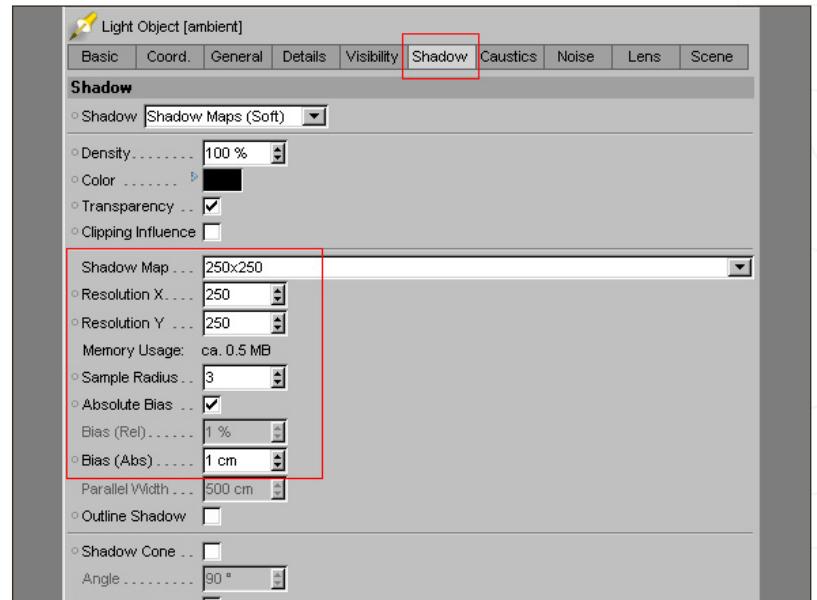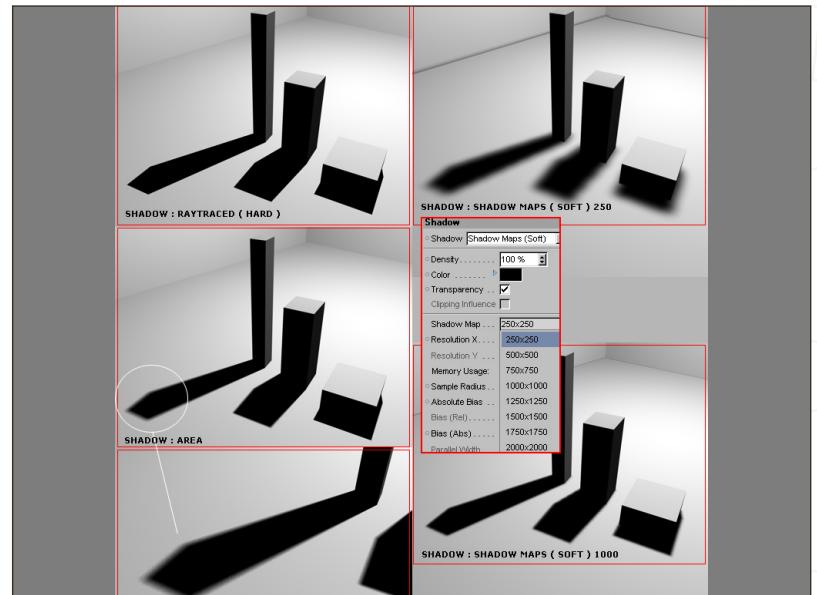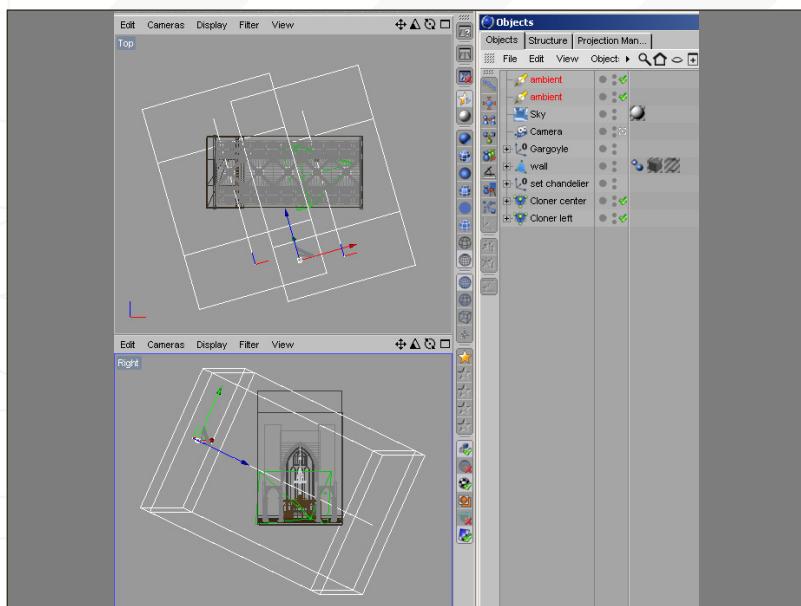
Fig.04

Fig.05

Fig.06

Fig.07

Fig.08

Fig.09

shadows type in **Fig.06**. The Hard shadow is not suitable for realistic images because such sharp shadow borders are rarely found in real world environments. However, Soft shadows, although they have soft borders, do not seem natural because the soft edge always has the same width. In nature, the closer an object is to a surface on which it casts its shadows, the sharper this edge will be. An Area shadow simulates this effect, as seen in **Fig.06**. This type of shadow also adds to the render time.
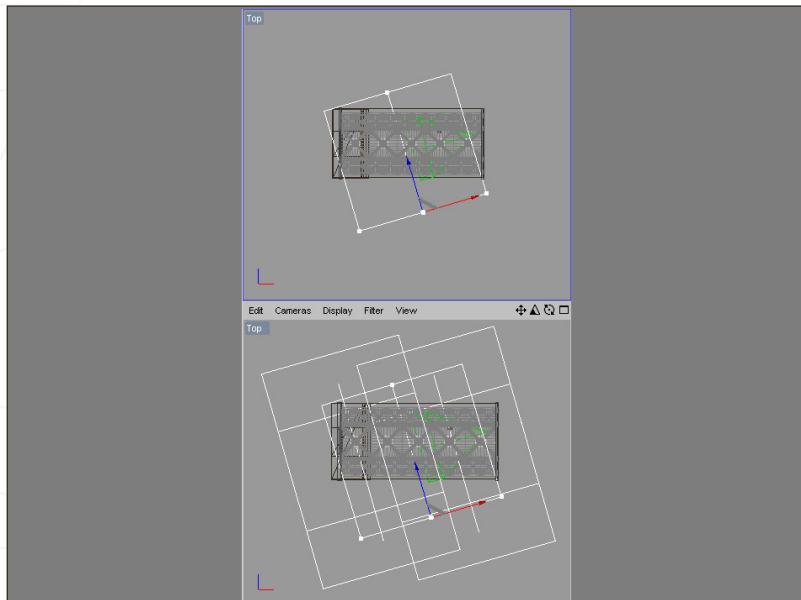
Returning to our scene, copy the ambient light and I placed it at the left of the existing ambient light, as shown in **Fig.07**. Make sure that both lights have an inclination of 16° on the H, -25° on the P and 0°on the B coordinates. These two lights are intended to identical, they have the same settings and their task, as I mentioned before, is to generate ambient light.

Now we need to create another light that will simulate the sun. Place the sun light as shown in **Fig.08**; its inclination is only on the H coordinates and its value is of 16°, to match up with the other lights.

In **Fig.09** you can see the settings for the sun light. The Color is yellow, the Intensity is 300%, the shadow is Shadow Maps 250x250.
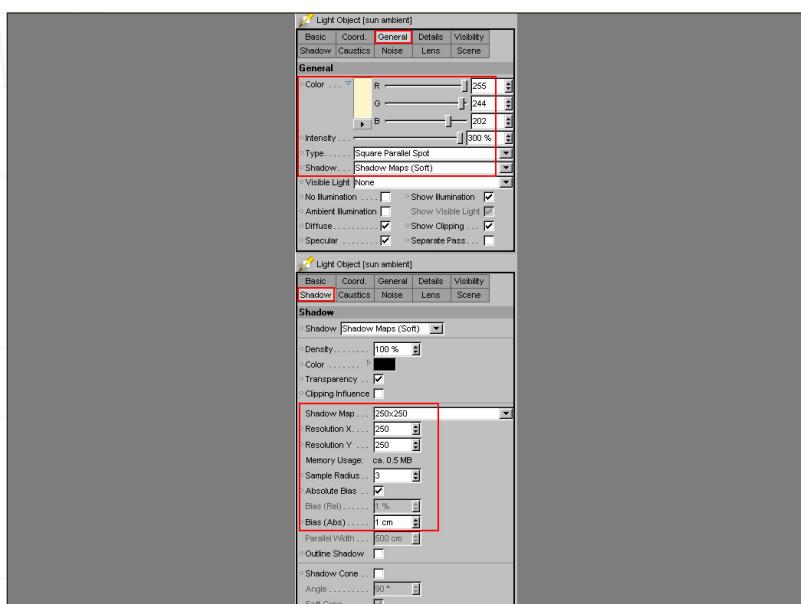
Another light source we can add to the scene are some candles. Insert a chandelier, with candles, at the centre of the vaulted ceiling of the main nave, as shown in **Fig.10**. (The candle light has been cloned by using the Array tool. The chandelier has been cloned too, but by using the Instance tool).

In **Fig.11**, the settings for the candle light are shown. The type of light is Omni. This time, its Color is a more intense yellow. The shadow is Shadow Maps 250x250. "Visible Light" has also been enabled. (There are three types of visible light: Visible, Volumetric and Inverse Volumetric. We will look further into Volumetric light later). In the Visibility page, set Outer Distance to 450cm, Sample Distance to 150cm, Brightness

to 2000% and enable the Use Gradient option. Outer Distance defines the length for which the density of light will change from 100% to 0%. Sample Distance determines how finely the visible light's shadow will be computed. Brightness defines the brightness of the visible light. The Additive option allows the light beam to mix with other light sources. Adapt Brightness avoids the over-exposed effect (**Fig.11**).

Add a Lens Effect to the candle light, using the settings show in **Fig.12**. To change the overall shape of the light's glow, you can choose from the menu of predefined light source glows. Click the Glow Edit button to open the Glow editor.

At this point, it might be a good idea to do a quick render, just to check that the lighting rig is working correctly. So before starting the rendering, let's take a look at the render settings (**Fig.13**). In the General page, you can give a name to the render settings and this name will then appear in the Render menu so that you can switch between different settings. Also in the General page, you can set the Antialiasing mode and the Filter mode for Antialiasing. You will find further Antialiasing settings on the Antialiasing page, and the Filter settings can be found on the Antialiasing page too, but we will look at this more later on.

With the Transparency option you can exclude the transparency and alpha channels if the option is set on "None". If the transparency is set on "No Refraction", transparent material will be rendered without refraction, while, if the transparency is set on "With Refraction", the transparent materials will refract. With the Reflection option you can choose if the reflections won't be rendered, or if only the Floor and Sky objects in the scene will be reflected, or if all objects in the scene will be reflected. The Shadow option allows you to choose to not render the shadows, to render only the Soft shadows, or to render all shadow types. In the Option page, disable the Auto Light, which Cinema 4D uses when there is no light source in the scene. In the Effects page you can load the
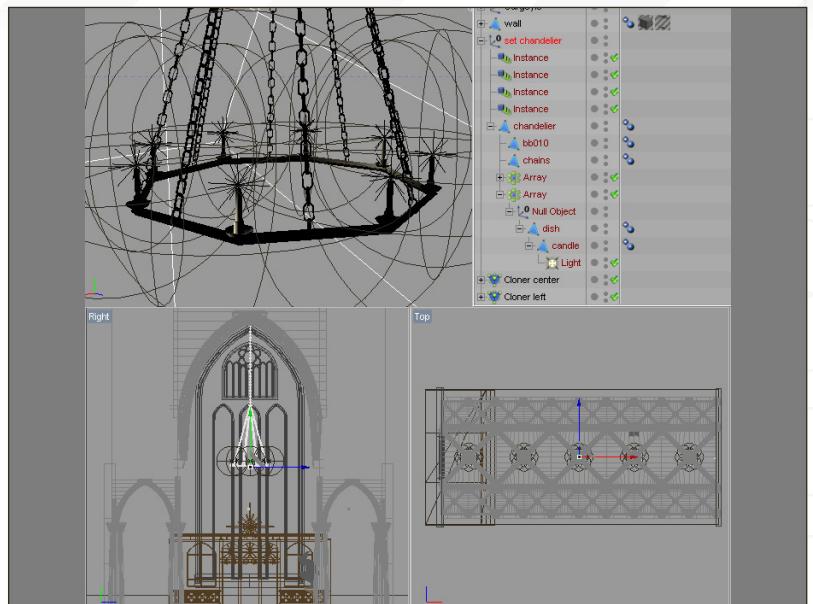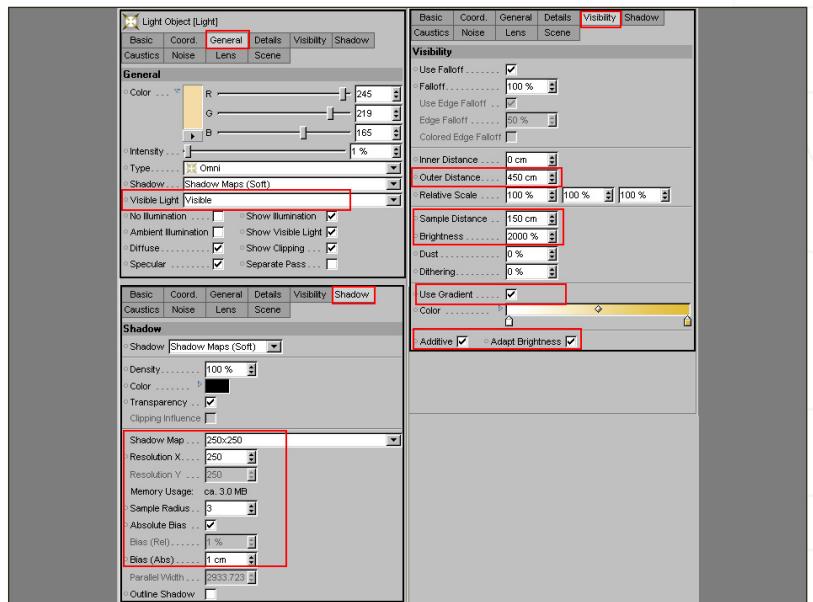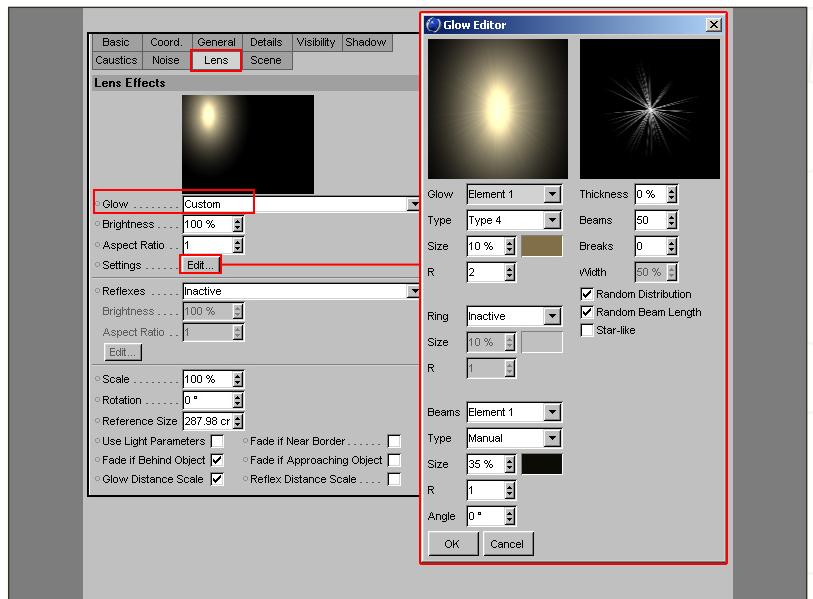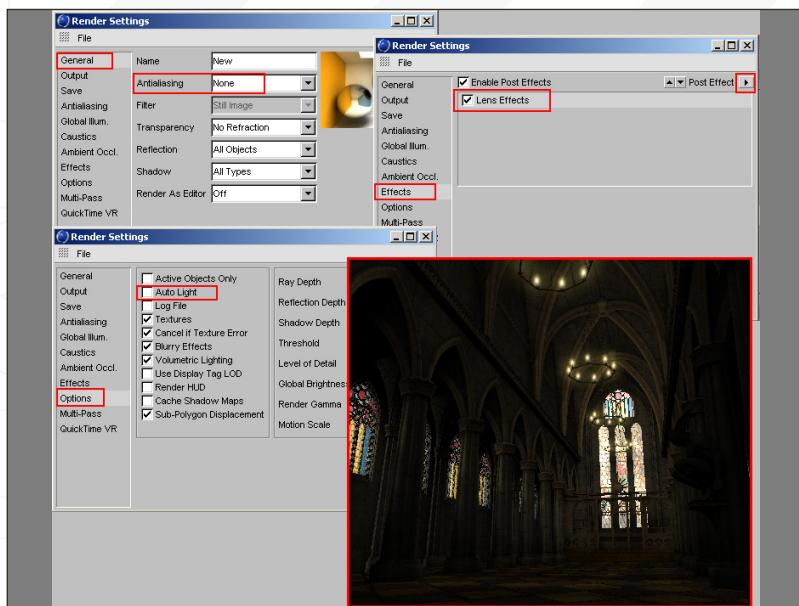
Fig.10

Fig.11

Fig.12

Fig.13

post effects such as Object Glow, Lens Effect, Median Filter, etc. Click on the Post Effects button in the top right corner of the dialogue to choose a post effect. As you can see from **Fig.13**, I chose the post effect "Lens Effects" to render the Lens that I added to the candle light. At the bottom right of the image you can see a render of the scene without using the GI.
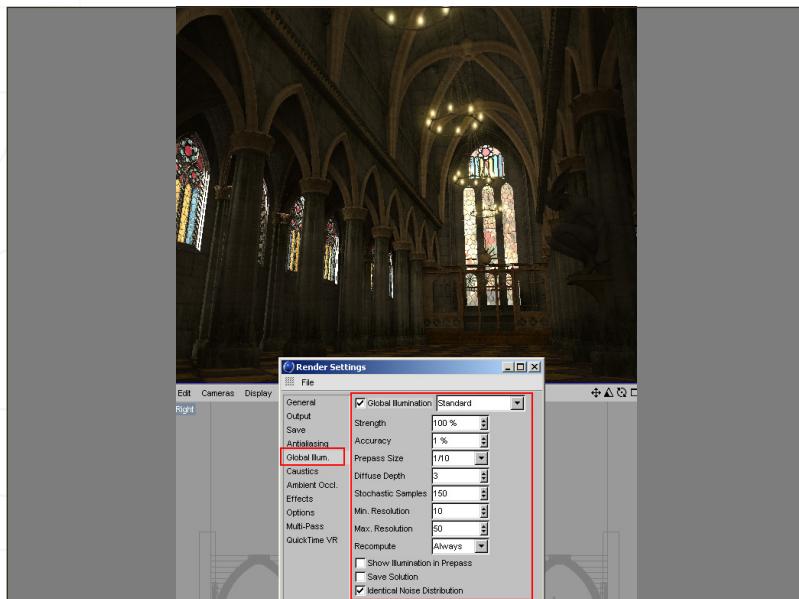
Now let's take a look at the GI settings. In the Global Illumination page, you will find two types of GI: Standard and Stochastic. Let's look at Standard mode now:

Strength - controls the strength of the GI effect
Accuracy - controls the general quality of the GI.
Prepass Size - defines the ratio of the prepass image size to the final render size. The prepass image is rendered first and it shows the shading points as dots. Always use 1/1 for final rendering as a lower setting reduces render time but also lowers the quality of the render

Fig.14

Diffuse Depth - the maximum number of reflections for each ray of light. The default value (3) is suitable for most scenes
Stochastic Samples - defines the number of the rays that come out in a dome shape from a ray that hits a surface
Min Resolution and Max Resolution - optimise the Accuracy setting. Min Resolution sets the number of shading points for the least important areas, while Max Resolution sets the number of shading points for the most important areas
Recompute - uses three modes: "First Time", the GI will be calculated for the first render only, future renders will reuse the data; "Always", the GI data is always recalculated when you render; "Never", GI is not calculated when you render.
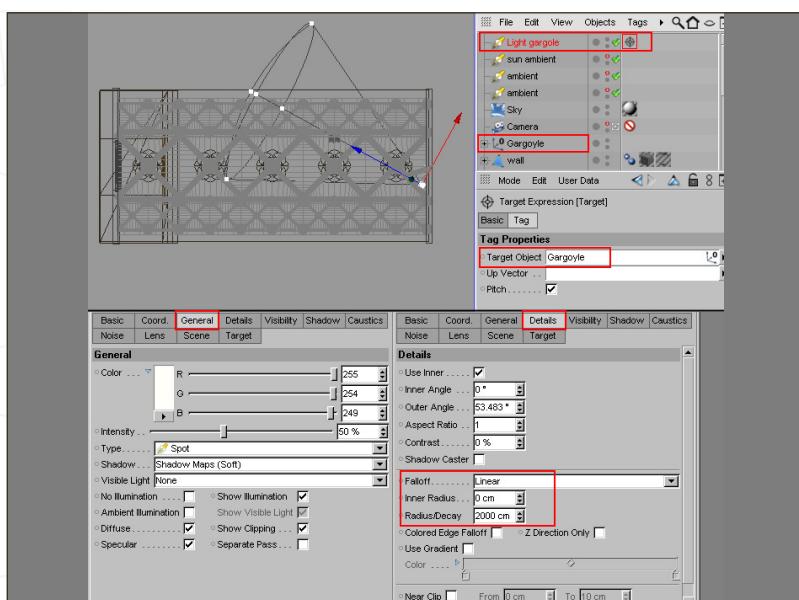**Identical Noise Distribution** - makes the noise homogeneous. In Standard mode this setting has little effect

Fig.15

In **Fig.14** you can see my GI settings for fast rendering. Later, we will change the GI settings for the final render. At the top of **Fig.14** you can also see a render based on my GI settings. As you can see from the image, the interior of the Gothic church is still dark and the statue of gargoyle is only just visible, so because of

this let's add another light that will illuminate the statue. This time we'll use a Spot light. Position the light as shown in **Fig.15** and add the gargoyle statue as the Target Object for the light, so that if you move the light it will still remain docked to its target.

At the bottom of **Fig.15**, you can see the settings for the gargoyle light. In the General page, decrease the Intensity to 50% and use Shadow Maps for the Shadow type. In the Details page, enable the Falloff Linear. By enabling Falloff, the brightness of the light is not constant, but gradually changes from 100% to 0%. This range, where the brightness of the light gradually fades, starts outside the Inner Radius. Within the Inner Radius the brightness of the light is constant. The Radius/Decay parameter defines the maximum range that will be illuminated by the light source.

Next, make a render (**Fig.16)**. Make sure the Intensity of the gargoyle light is set to 50% because now we're going to add the last light source the scene: the volumetric light.

Place the volumetric light as shown in **Fig.17**. Set the Type to Square Parallel Spot and the Visible Light to Volumetric. As you can see from the image, there are three type of visible light:
Visible - the light source will produce visible light that passes through all objects
Volumetric - the light source will produce visible light that does not affect objects that lie in its cone of light
Inverse Volumetric - the light is visible where the cone would be normally in shadow

The settings of the volumetric light can be seen in **Fig.18**. In the General page, change the default colour to yellow, increase the Intensity to 400% and chose Shadow Maps (Soft) as the Shadow type. In the Visibility page, enter a value of 2000cm for the Inner Distance parameter and a value of 3000cm for the Outer Distance. Increase Brightness to 500% (this is the brightness of the visible light) and then activate the Use Gradient option. In the Shadow
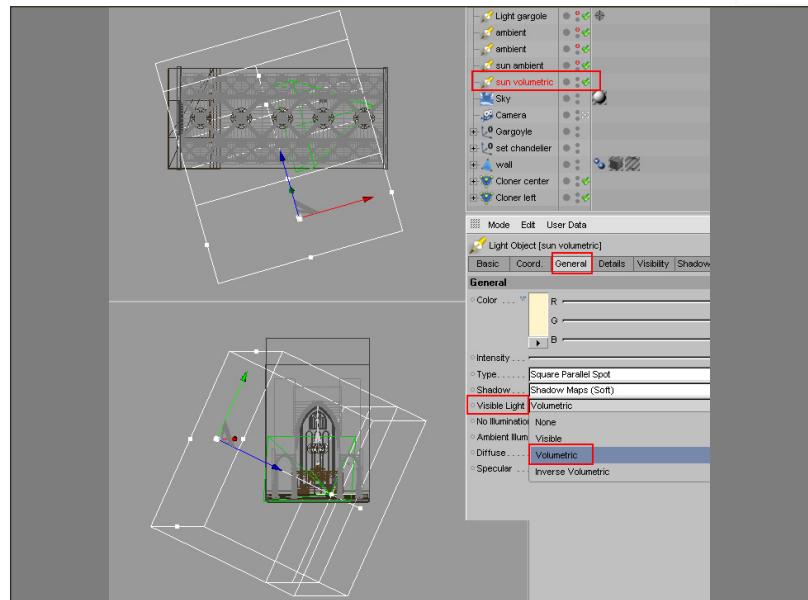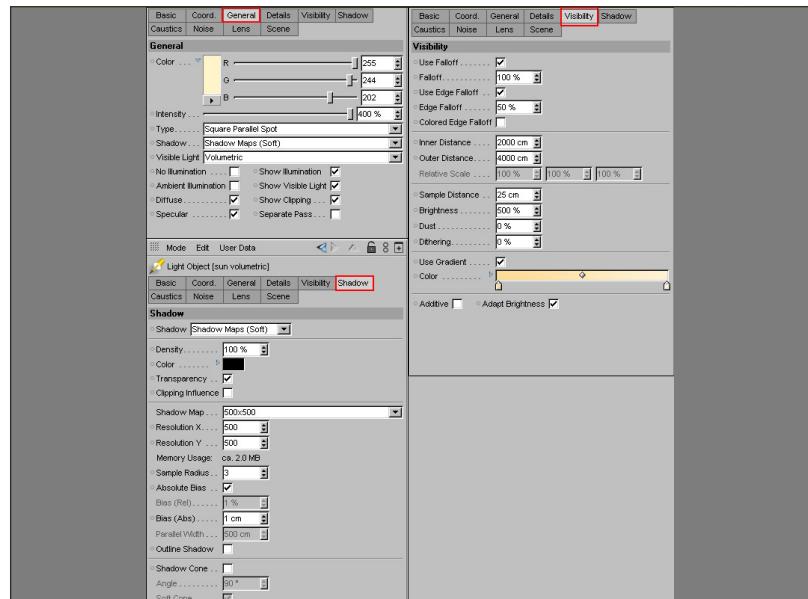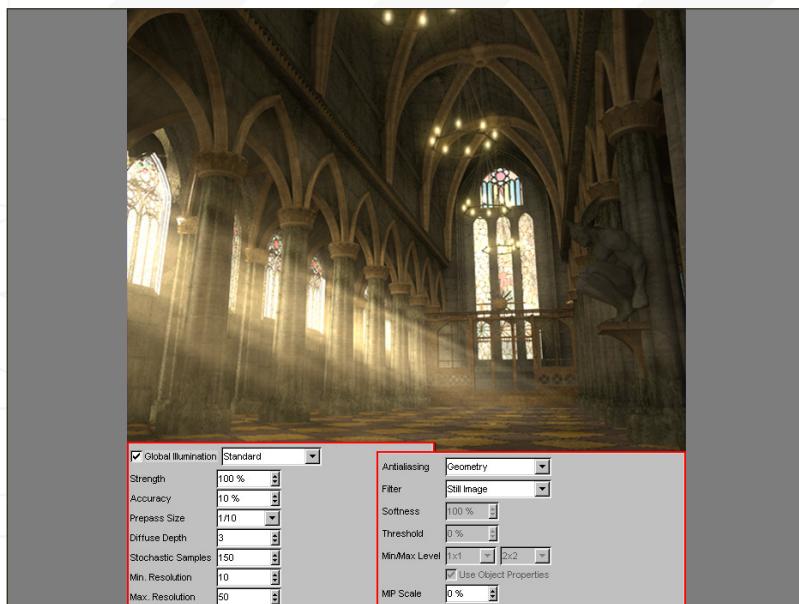
Fig.16

Fig.17

Fig.18

Fig.19

Fig.20

Fig.21

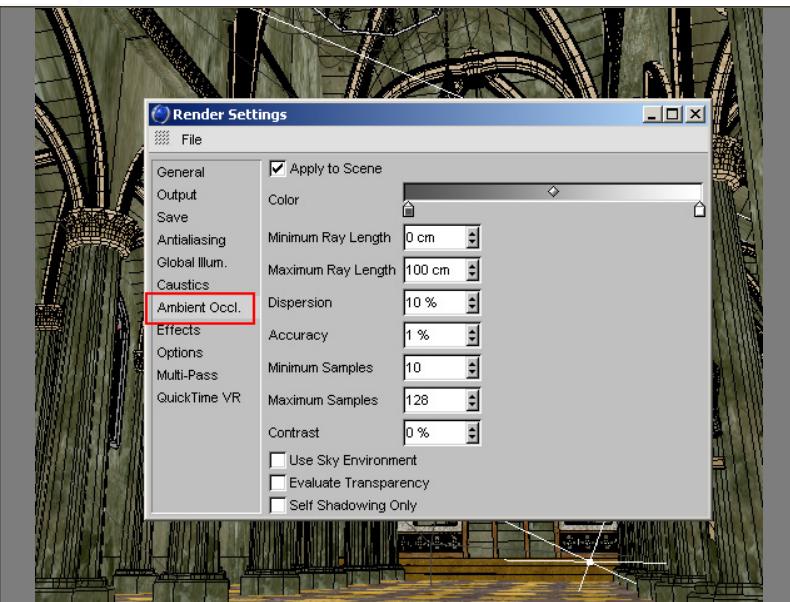page, use a higher Shadow Map Resolution, 500x500, so that the shadows will be precise.

Before making a render, let's enable Antialiasing using the Geometry mode and increase the Accurancy parameter of the Global Illumination to 10%. You will notice that the render times are higher than before; this is because we added the volumetric light to the scene. **Fig.19** shows the volumetric light entering through the windows; this is allowed thanks to the alpha texture that we added to the material of window. Without an alpha texture, we would need to remove the polygons that represent the glass.
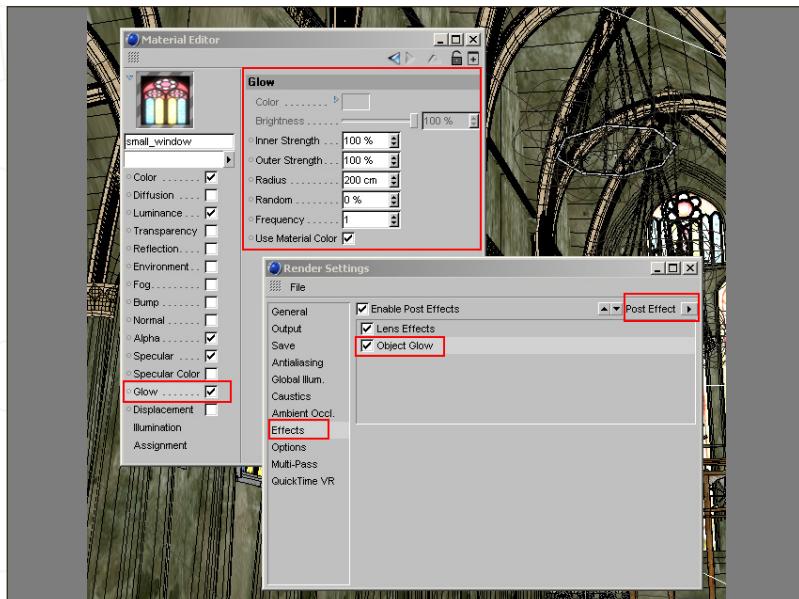
To make the image more realistic, we can use Ambient Occlusion (AO). AO determines to what degree each individual surface point is exposed and colours it accordingly. Corner areas, holes, and areas between closely placed objects will see less of the sky and will therefore be darkened in accordance with the AO settings. AO can be found in two locations within Cinema 4D: as a channel shader (Material Editor > Texture > Effect > Ambient Occlusion) or as a global effect applied to the entire scene from the Rendering Settings. The options in both dialogue windows are identical.

For this tutorial we're going to use the AO as a global effect applied to the scene, so let's take a look at its settings in the Ambient Occlusion page of the Render Settings (**Fig.20**):
Apply to Scene - check this to use the AO
Color - defines the colour gradient that the AO assigns. The left end of the gradient represents areas with minimal exposure, while the right end of the gradient represents the areas with maximum exposure
Minimum Ray Length - determines how the gradient defined in Color will be rendered between exposed and non-exposed areas
Maximum Ray Length - defines at which distance the surface see each other
Accuracy, Minimum Samples and Maximum Samples - these settings are responsible for the AO quality. Use the Minimum Samples to define the number that should be used in less critical

areas. Use the Maximum Samples to define the number that should be used in critical areas

Now we want to add a Glow to the windows. In **Fig.21** you can see the settings that I used for the Glow in the Material Editor:

Inner Strength - defines the intensity of the glow over the material surface

Outer Strength - defines the intensity of the glow at the edges

Radius - the length for which the glow extends from the surface

Use Material Color - when enabled, the glow is calculated on the basis of the material colour, otherwise the object and glow colours are mixed

The Glow is rendered as a post effect, so we need to add the post effect Object Glow in the Effect page in the Render Settings (**Fig.21**).

Antialiasing removes jagged edges from the image, so still in the Render Settings, let's take a look at the Antialiasing parameters and the settings that I would recommend (**Fig.22**):

Antialiasing > Geometry - the default mode; when it is selected, you can only change the Filter and MIP Scale parameters

Filter - allow you to blur or to sharpen the Antialiasing according to your choice

Antialiasing > Best - enables the following parameters: Threshold and Min/Max Level

Threshold - default value is 10%, although I usually choose to set it to 0%

Min/Max Level - defines the quality of the Antialiasing. The default values for the Min/Max Level are 1x1 and 4x4. If you change the Max Level to 2x2, the render time will be shorter

Softness - defines the softness of antialiasing for the Blend, Area and Cone filters

We can also change the GI setting for the final render. So increase the Accuracy to 75%, (I suggest not use 100% otherwise the render time will be very long), change the Prepass Size to 1/1, enter a value of 300 for the Stochastic Samples, increase the Min. and Max. Resolution respectively to 50 and 100, as shown in **Fig.23**. Now we are ready to make the Multi-Pass
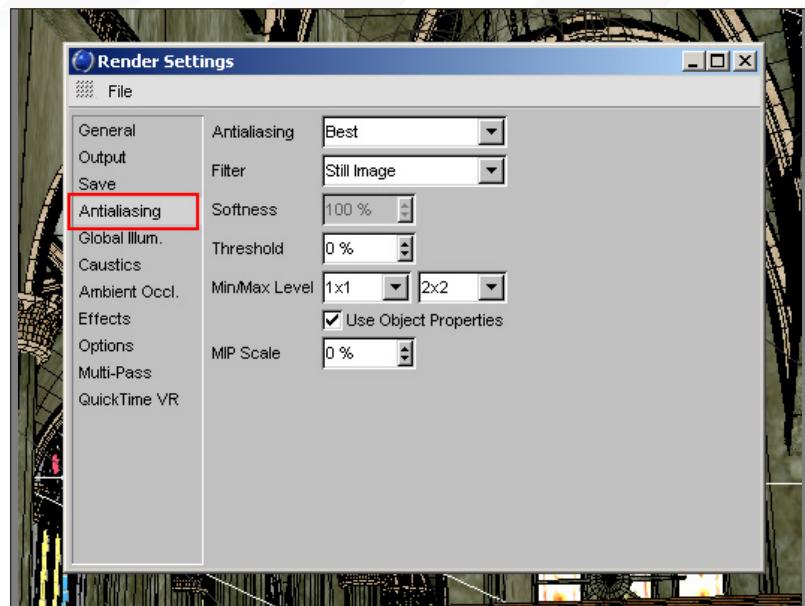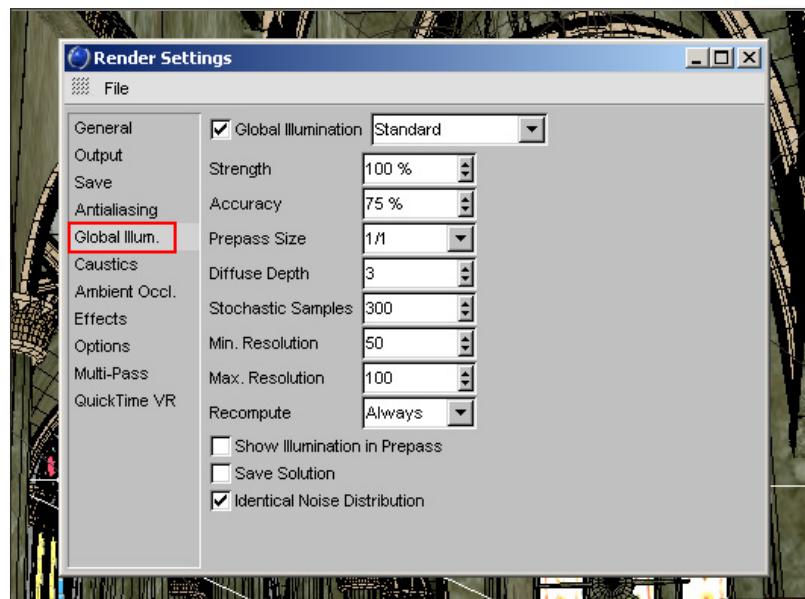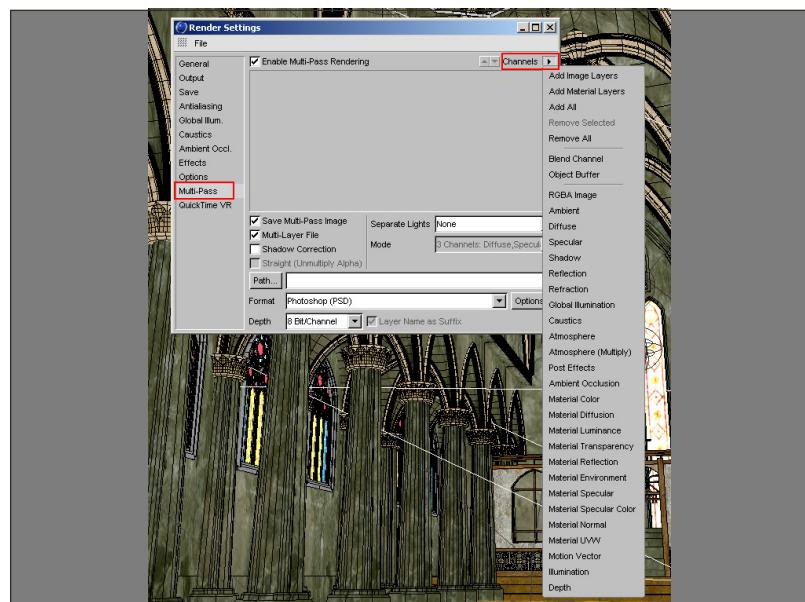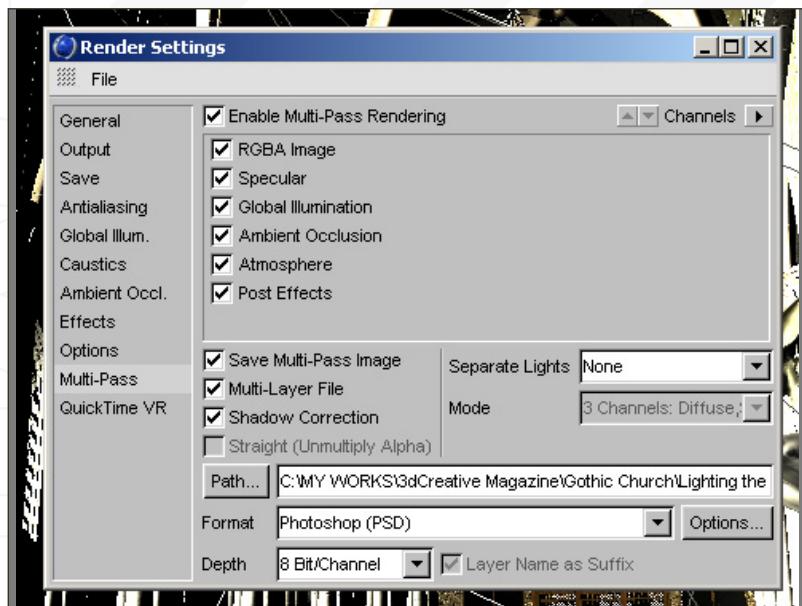
Fig.22

Fig.23

Fig.24

Fig.25

Rendering. With the Multi-Pass we can split the rendering into separate layers and save them in PSD - thus we can post-edit the renders in compositing software such as Photoshop. Let's take a look at the Multi-Pass page in the Render Settings (**Fig.24**). Use the Enable Multi-Pass Rendering to enable or disable multi-pass. Click on the Channels button to load the layers that may be included in the multi-pass rendering. Enable the Save Multi-Pass Image option if you want the multi-pass image to be saved when you render to the Picture viewer. Multi-Layer File allows you to save all layers in a multi-layer file. Separate Lights allows you to choose which light sources have their own separate layers. Path is where you can set the save path for the file.
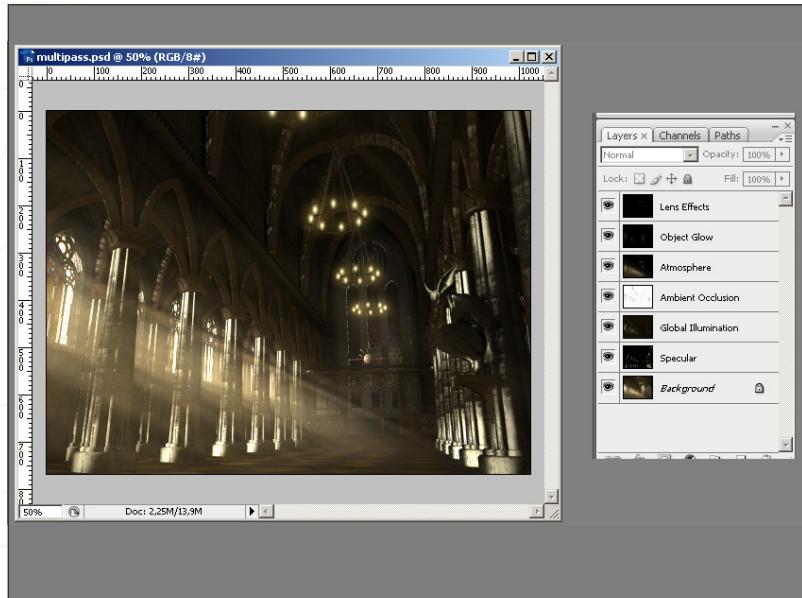
Fig.26

From the Channels list, load the following layers: RGBA Image, Specular, Global Illumination, Ambient Occlusion, Atmosphere and Post Effects (**Fig.25**). Enable the Shadow Correction option, enter the Path where you want the image be saved and choose a Format, such as Photoshop. Make the render in a Picture viewer. 1024x768 is the image resolution that I chose.
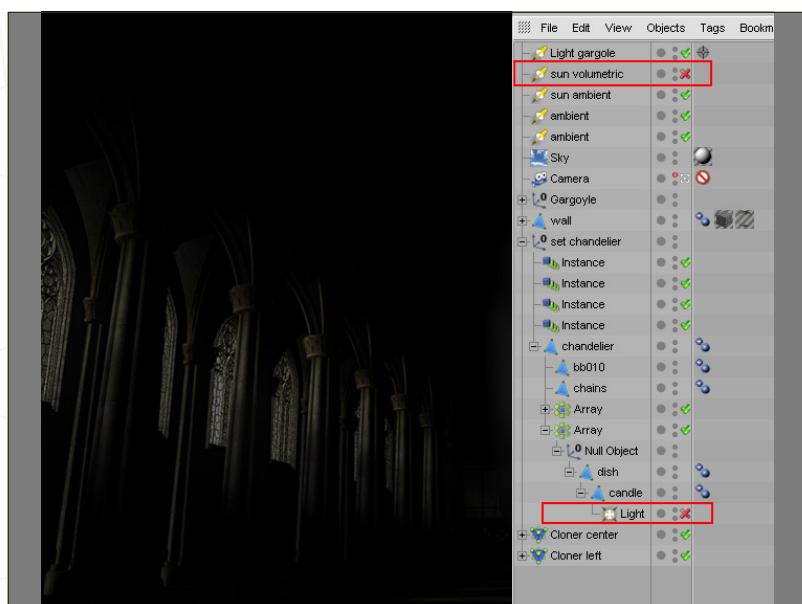
When the rendering is finished, open the file in Photoshop. As you can see from **Fig.26**, we have a multi-layer file composed of RGBA Image, Specular, GI, AO, Atmosphere (volumetric and visible lights) and Post Effects layers. The RGBA layer is the complete image. You can also see that Cinema 4D has already assigned the blending mode to the layers.

Fig.27

To finish, render the image without Global Illumination, Ambient Occlusion and volumetric/ visible lights with normal rendering, as seen in **Fig.27**. This image will be the base for our compositing and we now have all the images that we need to compose the final image.

NIKI BARTUCCI

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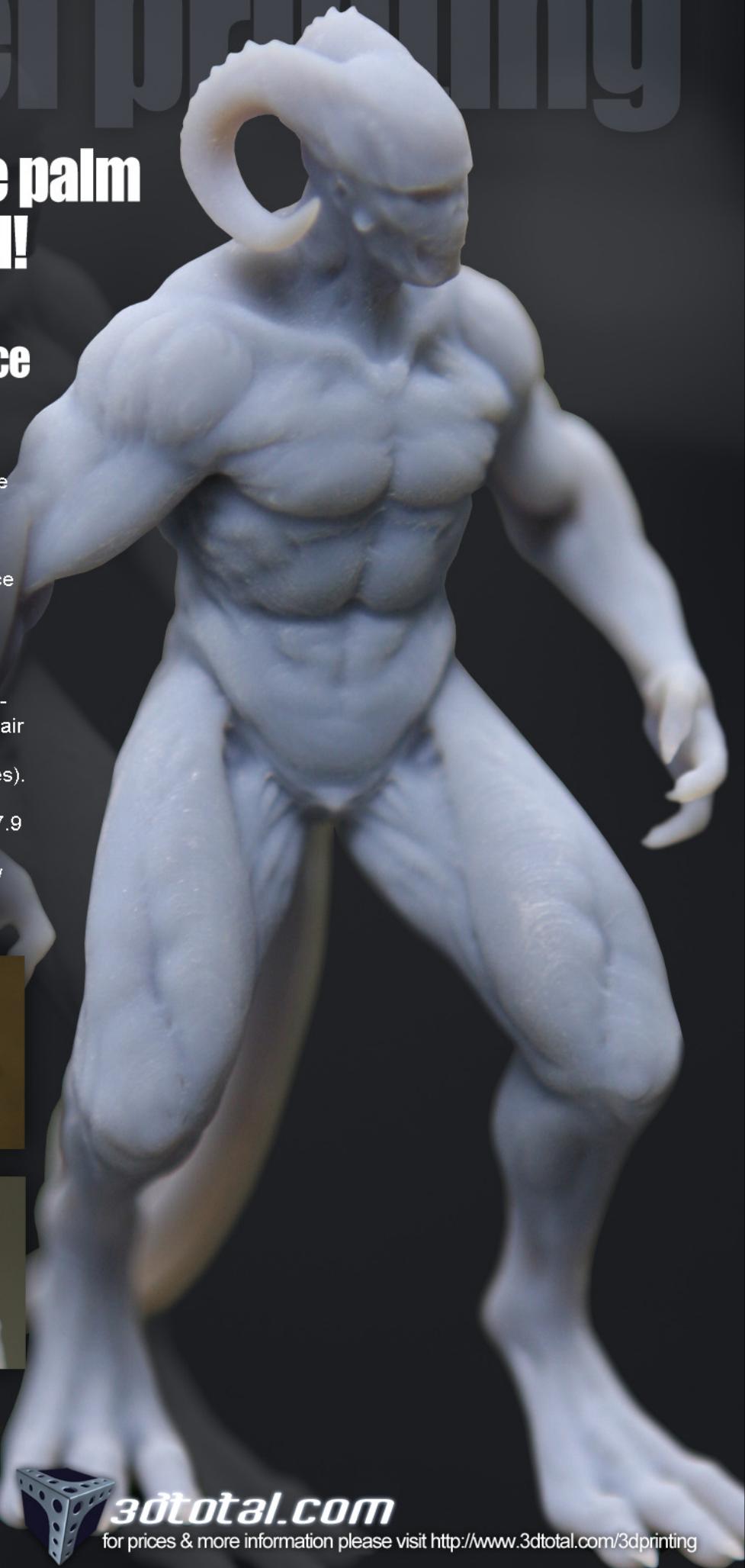
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Gothic Church

Interior Creation

This series will provide an overview of the principal techniques used to create a gothic interior based upon a concept painting, along with a tutorial on the process of sculpting a gargoyle character in ZBrush. Key methods covering modelling, texturing, lighting and rendering will be outlined over the course of the series and culminate in a chapter on post production and how to composite numerous render passes into a final image.

The schedule is as follows:

PART 1: This tutorial will outline some of the prominent approaches to building the church interior. We will cover some of the key methods and modifiers responsible for creating the scene and core geometry.

PART 2: Will focus on the creation of the gargoyle which will be mounted on one of the columns. This tutorial will orientate around ZBrush and its powerful sculpting tools and show how a detailed model can evolve from simple ZSpheres.

PART 3: This part will detail the texturing phase of the series and deal with mapping and unwrapping key areas of geometry alongside the gargoyle.

PART 4: Lighting and rendering will be the focus in this tutorial. Light rigs and a variety of render passes will be explained in readiness for Part 5; the post production.

PART 5: This, the final part of the series, will show how the various render passes are composited in Photoshop to create a final render. An account of some of Photoshop's tools will show how versatile this approach can be and show the value of multiple passes for post production.

Gothic Church
INTERIOR CREATION
PART 4: LIGHTING & RENDERING

Created In:

LightWave

PART 4

Welcome to the fourth part of this tutorial series. In this instalment, we are going to light and render our scene. Again, we are using the latest version of LightWave – 9.6.

We'll start with a candle for the chandelier. Place the light directly on top of the candle mesh, so it can represent the flame. Use an orange-coloured point light with a linear intensity falloff. For the falloff range, use a value of 600 mm. To simulate the candle flame we are going to use a Lens Flare, so check the according box in the light properties. In the Lens Flare Options, use a Flare Intensity of 6.0%. Disable all streaks and the central ring. Enable the "Glow Behind Objects" option (**Fig.01**).

Make a test render – if you are satisfied with the look of the first candle, copy the light for all the candles. Make another test render. This looks very much like candlelight (**Fig.02**). These lights only illuminate the chandelier itself, and are not strong enough to light anything else.

We could use all the candles for illumination, but it is much more complicated to tune the look and the shadows if you have to deal with so many point lights. It is easier to work with one light instead, and it also means the render times will be much lower.

Add a spherical light with a size of 900mm. Give it the same colour as the candles – a light orange. Use a linear Intensity Falloff with a Range of 8m.

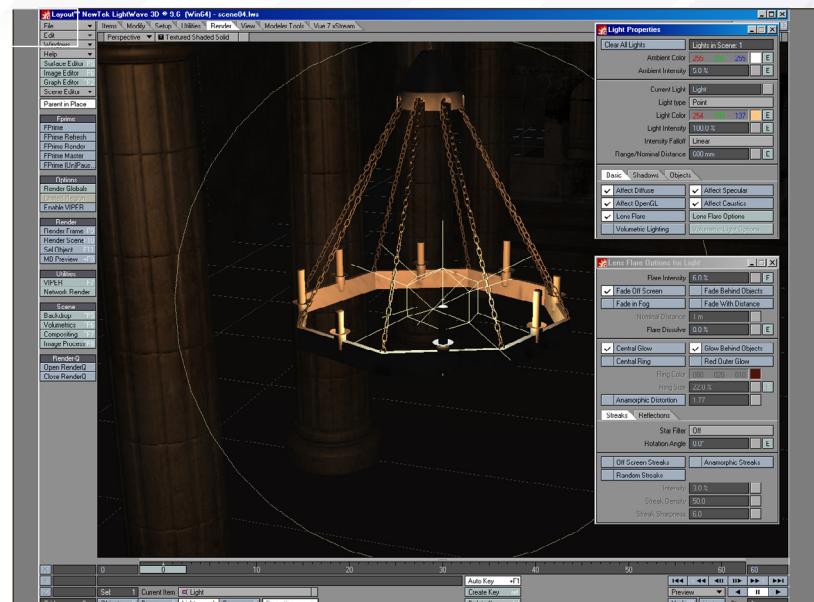Exclude the chandelier from the object lists, as the lighting on it already comes from the small
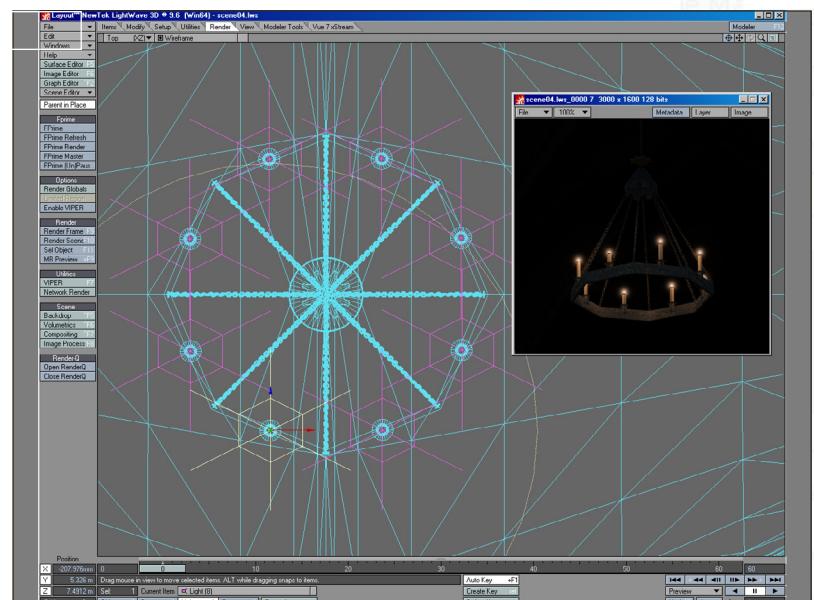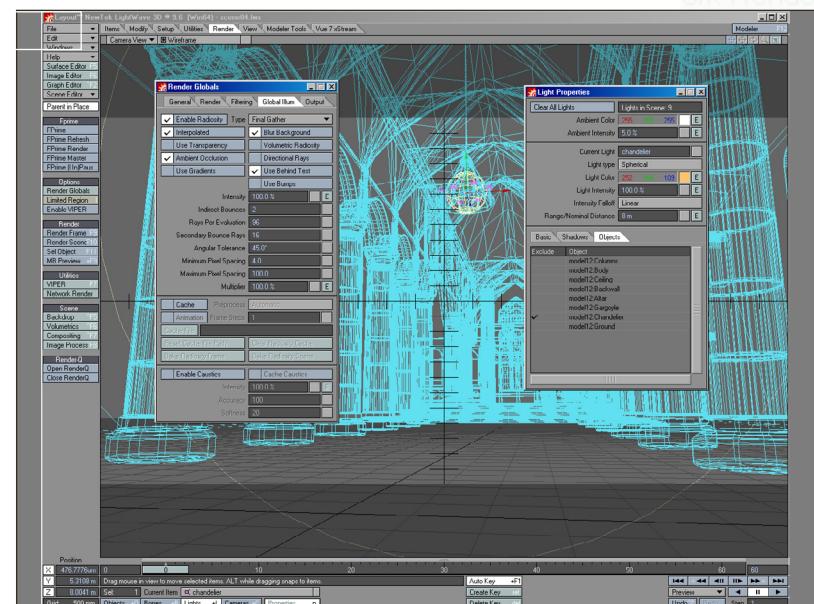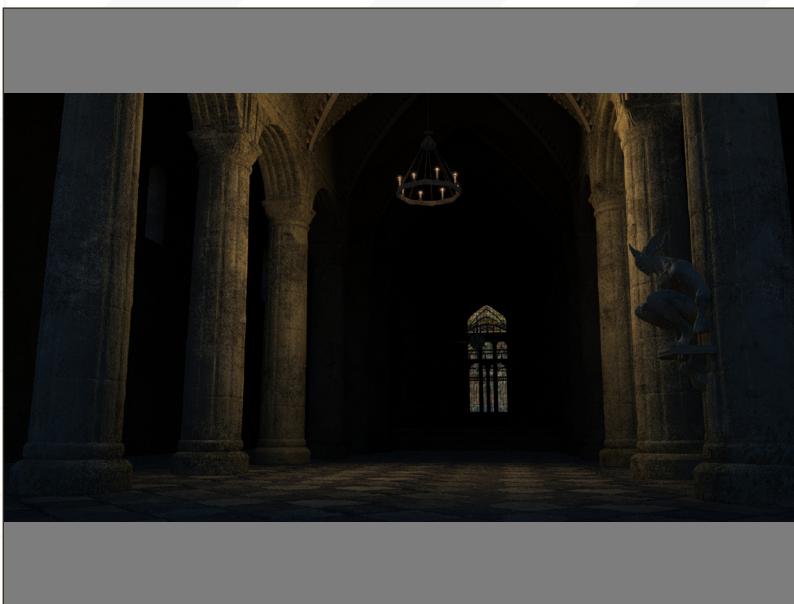

Fig.01

Fig.02

Fig.03

Fig.04

candles. If you have a fast computer, you can enable Radiosity right now – but you could also do it at any later time to speed up your eventual test renders. For the Radiosity settings use 2 indirect bounces and a value of 96 for Rays per Evaluation; the other settings remain the default (**Fig.03**).

Make a test render. The chandelier works very well, in my opinion (**Fig.04**).

Add the first light for the outside of the church. Again, we are going to use sphere lights, as they cast soft shadows and render much faster than, for example, area lights.
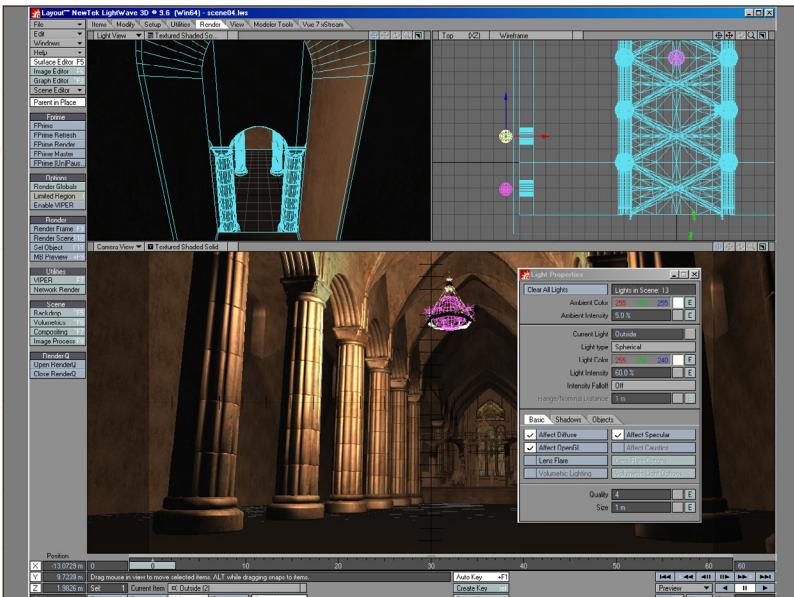
Fig.05

Use a size of 1m. Light intensity should be 60%. You can look through the light to make the placement easier. The light should shine down into the church. Make a test render for the first light; when you are satisfied with it, make a copy for each window (**Fig.05**).
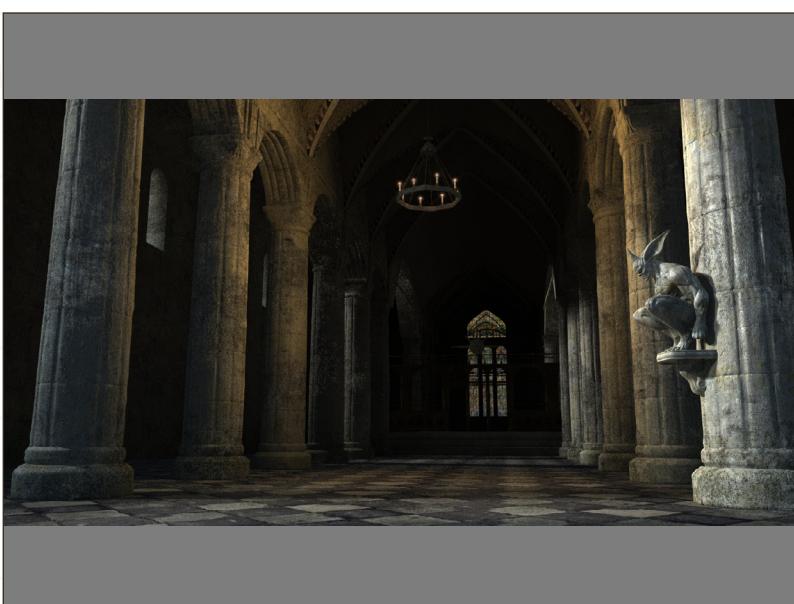

Fig.06

Make another render test. The image already has much more depth to it and looks much more interesting (**Fig.06**).

Next is the big window in the back of the church. We need a light shining in from behind it to make the window glow slightly. So add a very strong spotlight and place it behind the window. Set Intensity Falloff to Inverse Distance and use a Range value of 3m. Make sure the Spotlight Cone Angle is big enough to cover the complete window.

This one works hand in hand with the glass window surface, so you might also have to adjust your material settings a bit. As the window is not really transparent, but translucent instead, no light will be visible inside from this spotlight. Instead, we emulate the light that would shine through by adding lights on the inside of the glass as well (**Fig.07**).

Fig.07

Use two point lights with a Linear Falloff and a Range of 6m. Light Intensity should be around 60%. The two lights need to be rather close to the window surface. Place one near the upper part of the window and one near the lower part (**Fig.08**).

Fig.08

The altar is lit by two spotlights from the right and from the left. Start with one side, as the church is symmetrical you can later just copy the light and put a (-) on the X position value, and the H rotation axis.

Light Intensity is 90%, light colour is slightly yellowish, and Intensity Falloff is once again set to Linear with a Range of 13m. Use a Cone Angle so that the light includes the complete altar and a bit of the stairs, as well (**Fig.09**).
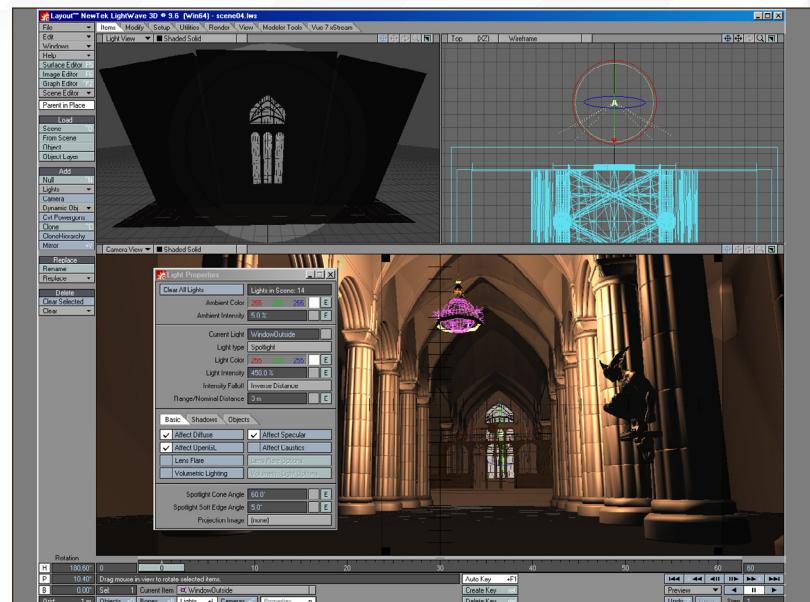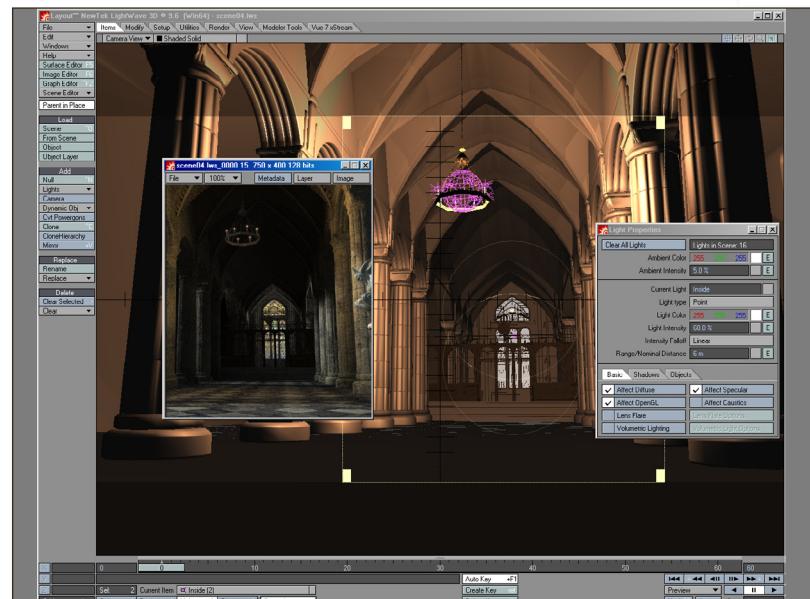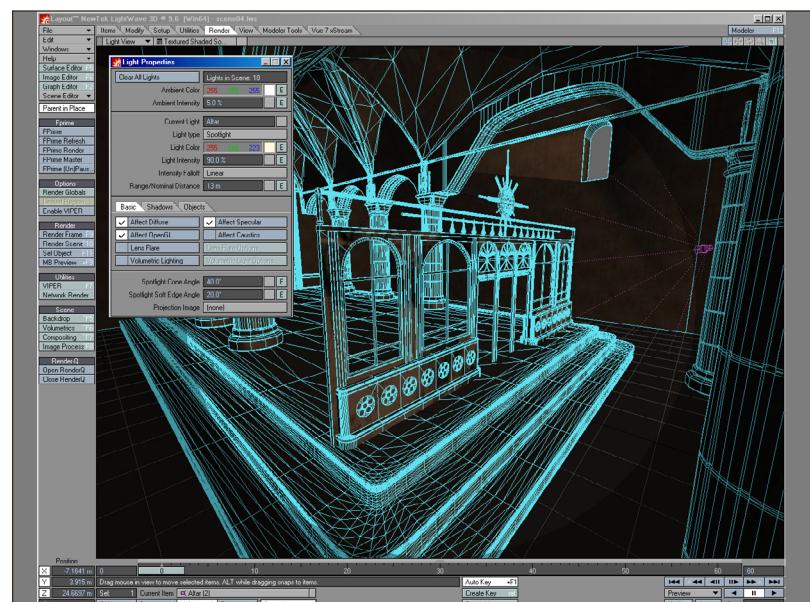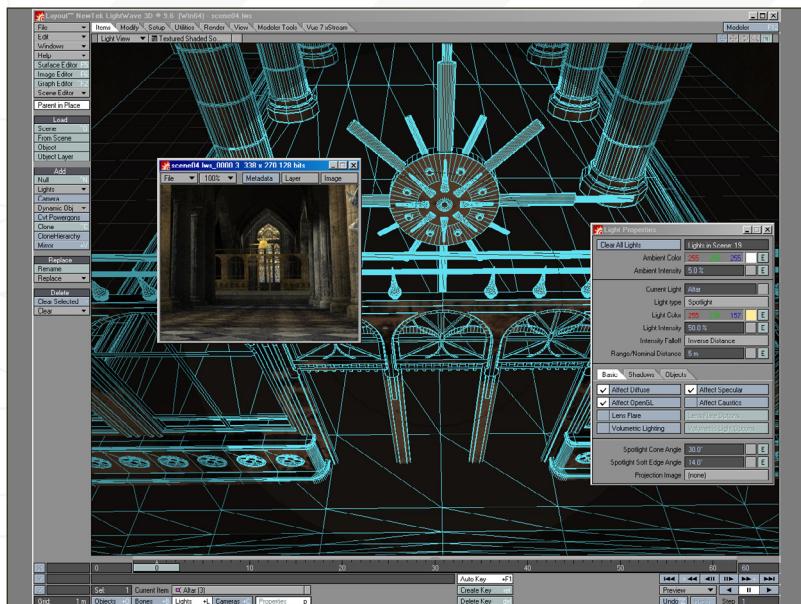

Fig.09

Fig.10

Another spotlight can be used to add a certain golden glow to the sun element on top of the altar. Use a light that's less intense, but more yellow in colour. Intensity Falloff is set to Inverse Distance and the Range is set to 5m. Note that I used a higher Soft Edge Angle so there are no visible light edges on the altar. This way the light does not reach the ground, but softly illuminates the top of the altar (**Fig.10**).
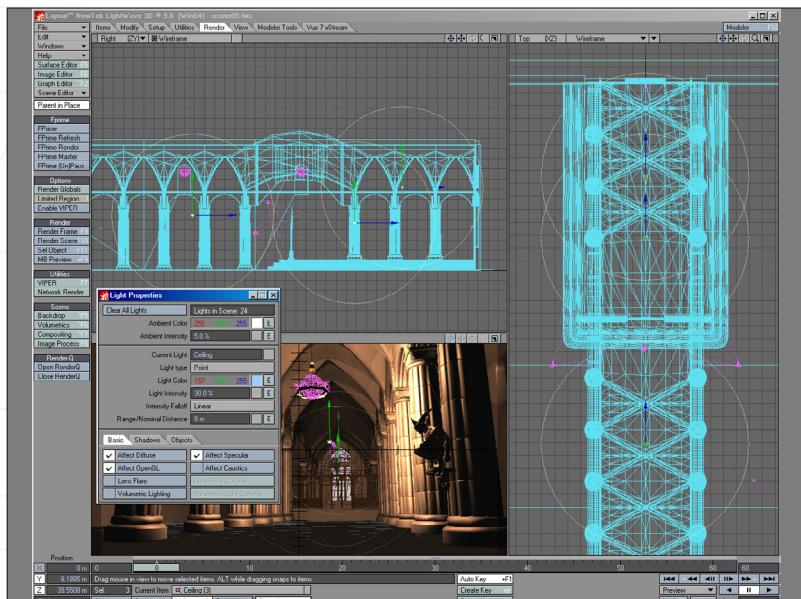
Right now the ceiling is nearly black, as there is no light reaching up to it. For contrast reasons, it's good to keep it quite dark. So all we need to do is brighten up the shadow a bit. Use a few bluish point lights with a low intensity of 15–30% and a Linear Falloff of 8m.
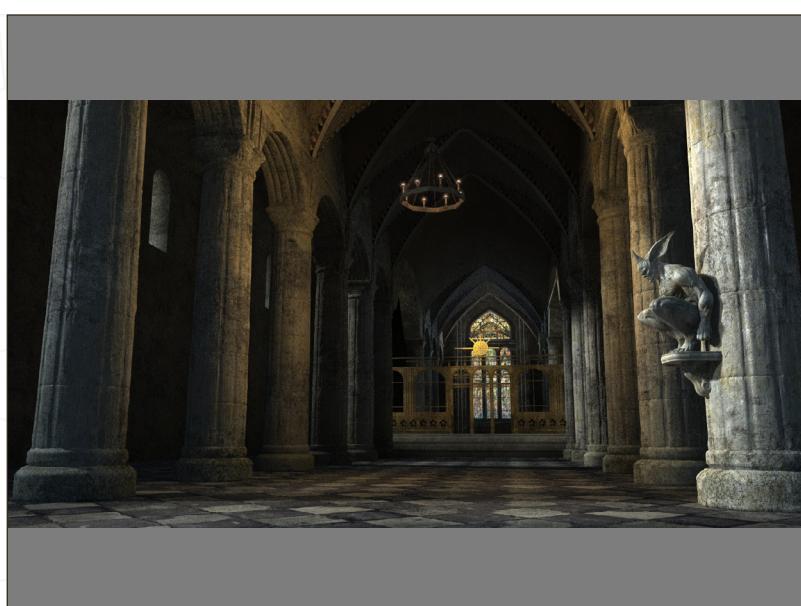

Fig.11

Place three lights in the back part of the church. It makes sense to have them somewhere near the side windows. Don't place the lights to close to the chandelier, as that would destroy the depth that we are trying to achieve (**Fig.11**).

Make a test render again. If you are satisfied with the overall look, you can prepare the final render (**Fig.12**).

In the camera properties, enter the final render resolution and a higher Antialiasing level. I used a level of 2 in combination with Adaptive Sampling and a Threshold of 0.05.

In the effects panel, add the image filter: PSD Export. Check all the layers that you'd like to create - it is okay to use them all! It is part of the fun of compositing to play around with the different layers. The more important ones would be Diffuse, Specular and Reflection layers.

The Depth layer is especially important as you can generate a lot of different effects with it, so it is a render pass you should always create along with your final render.

Fig.12

In the Render Globals > Render Tab, turn on Raytrace Reflections and Raytrace Shadows, if you have not already done so (**Fig.13**).

Now, for the Ambient Occlusion pass, save a copy of your scene and object; in the scene, delete all lights, besides one. In Render Globals, disable Raytrace Shadows, Raytrace Reflections, and also turn off Radiosity. Make also sure the PSD image saver is disabled, so you don't save over the rendered passes.

In the Surface Editor, go to the Shaders Tab and add the plugin, "SG_AmbOcc_Exp"*. You could basically work with the default settings – I changed the Number of Rays to 20 and the Max Ray Length to 1.5m. Copy this shader and paste it onto all surfaces, except glass. For this material, change the colour to white and disable the texture on the colour channel.

Render the Ambient Occlusion Pass in the same resolution as the other passes (**Fig.14**).

*You can download the external plugin, "SG_AmbOcc_Exp.p" by clicking **here.**

There are also node based/64bit versions available; however, I find the older one to be much more reliable for me: click **here.**

Have a look at the Ambient Occlusion render (**Fig.15**). The areas in which light is hard to reach appear black, while the rest of the image is white. As with the Depth pass, the Ambient Occlusion should be obligatory in most projects.

For the volumetric light that is shining through the small windows, make another copy of the base scene. This time delete all lights expect for one of the outside lights. Disable Raytrace Reflections and Radiosity, as well as the PSD image saver, but leave Raytrace Shadows on.

In the object properties, check Matte Object and select Alpha: Constant Black. Do the same for all object layers, because we only want the volumetric light to be visible.
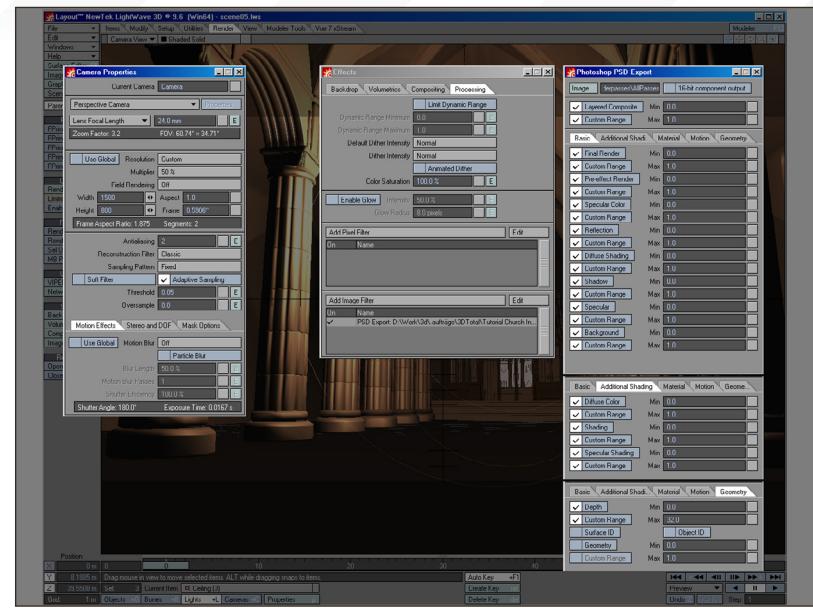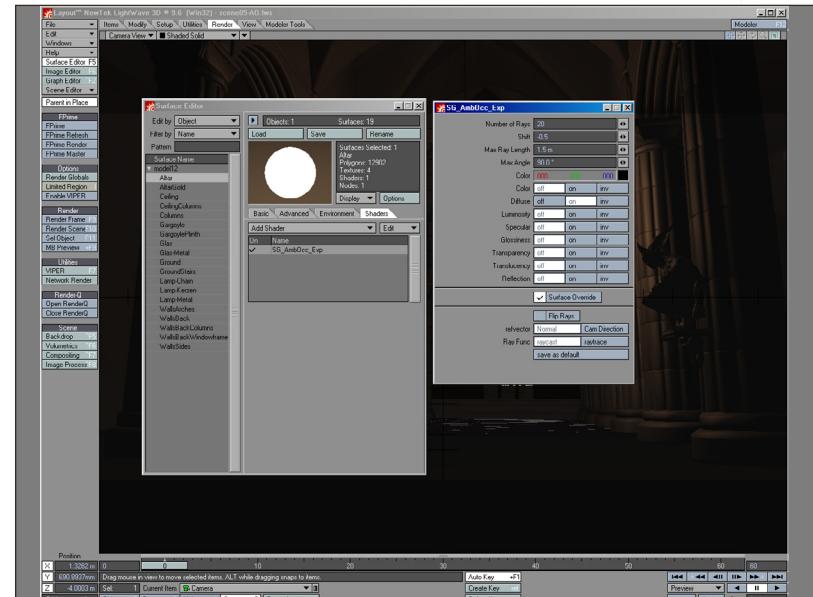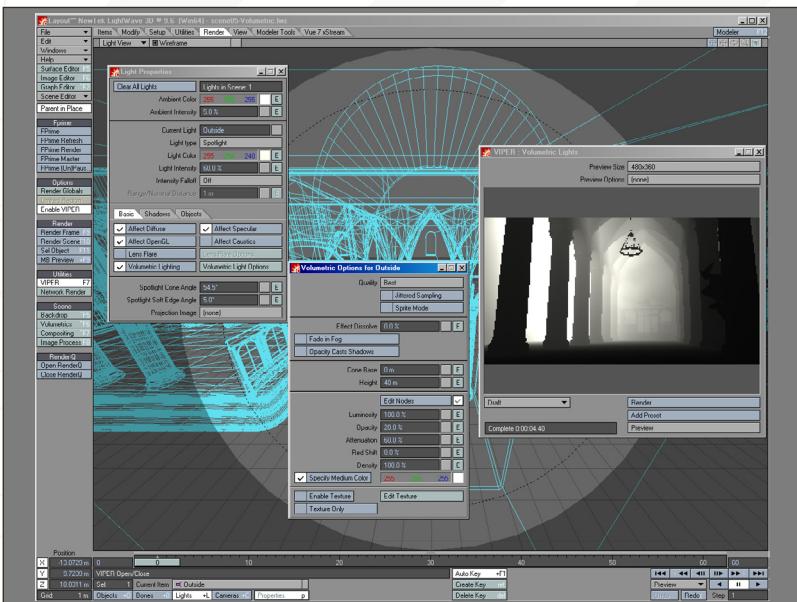
Fig.13

Fig.14

Fig.15

Fig.16

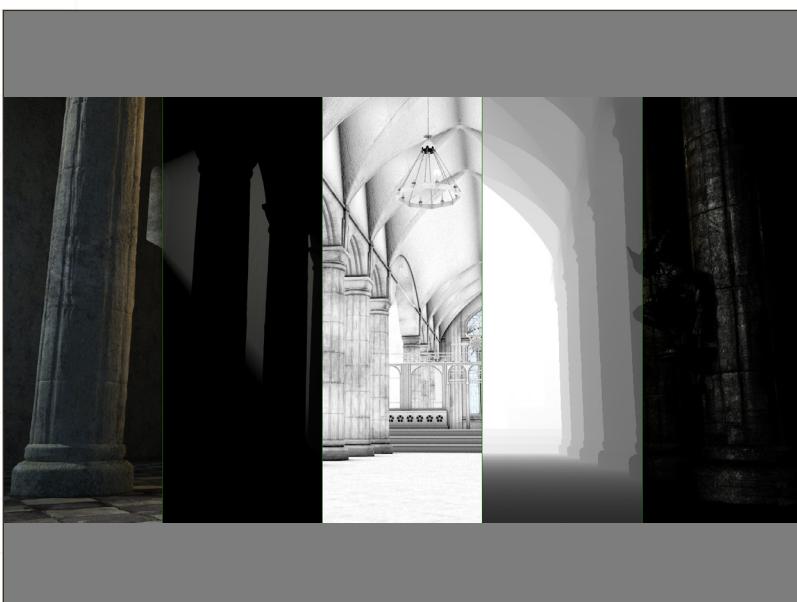Change the light type to Spotlight and use a high enough spotlight angle so that the complete window is covered.

Now check Volumetric Lighting. In the volumetric settings use the settings provided in **Fig.16**. Use VIPER to preview your settings in realtime; this way, finding the right values is quite easy. Do some test renders at lower resolution and lower quality settings, as well.

When you are happy with the result, do the final rendering. Render each light separately (move the light to the next window after one render is done). This way you end up with four images for the outside lights. Compositing is much easier this way.
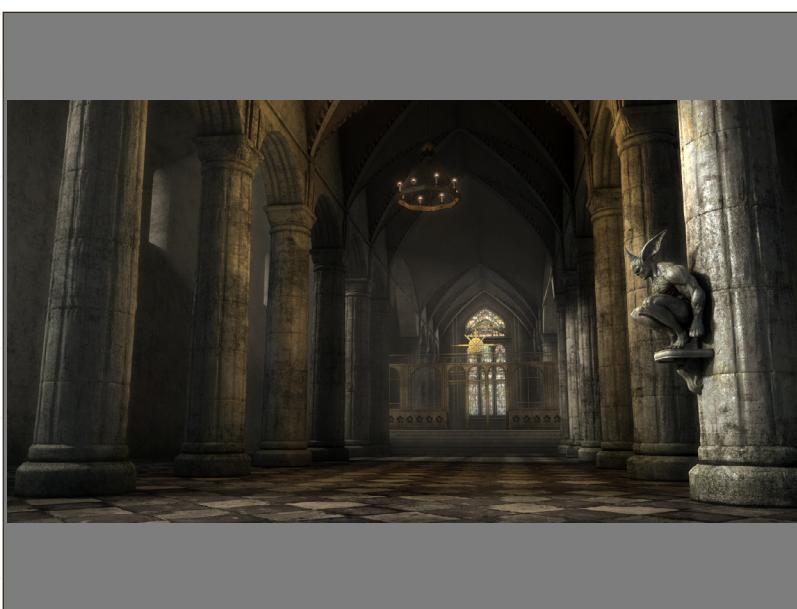

Fig.17

All the render passes are now done. With the image files we've created, you will be able to control many aspects of the final image in compositing. The extra scenes for Ambient Occlusion and Volumetric Lighting save render time and make the setup very flexible as well (**Fig.17**).

In the next instalment you will learn how the passes are combined and composited in Photoshop.

This was the last part I have created for this tutorial series; Zoltan Korcsok will be finishing this series next month in Photoshop. I hope you've enjoyed the tutorial series up until now and if you have any questions or would like to give me any feedback, please feel free to contact me via my website.

Fig.18

GOTHIC CHURCH
INTERIOR CREATION
PART 4: LIGHTING & RENDERING

DOUGH-CGI : ROMAN KESSLER

For more from this artist visit:

http://www.dough-cgi.de

Or contact:

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Female Characters Creation

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- Complete step by step modelling of the Eva Wild character.
- Teaches the importance of studying human anatomy.
- Provides clear diagrams showing muscle flow and bone structure.
- 14 hours of comprehensive training.
- Suitable for artist of all levels.

Part 2 - Texturing, Mapping & Clothing:
- Complete step by step texturing process of the Eva Wild character.
- Modelling and Texturing of Eva Wild garments.
- Lighting the character.
- 4 hours and 47 mins of comprehensive training.
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- Complete step by step of setting up a fully animatable rig for the Eva Wild character.
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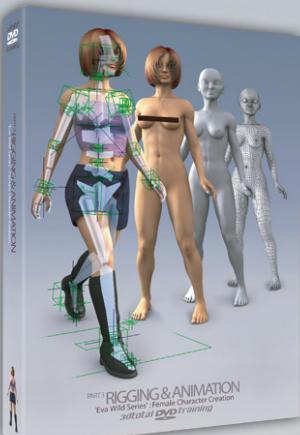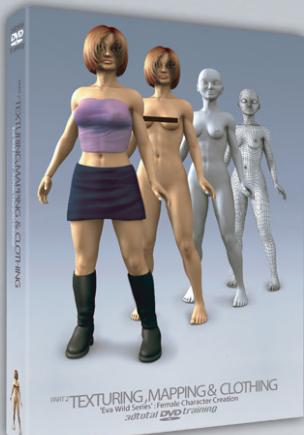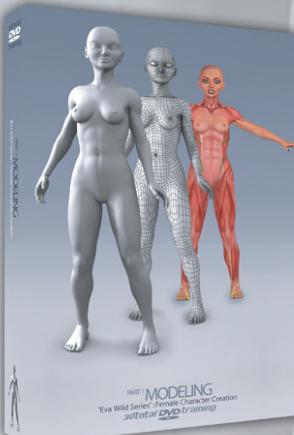
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Maya

Gothic Church
Interior Creation

This series will provide an overview of the principal techniques used to create a gothic interior based upon a concept painting along with a tutorial on the process of sculpting a gargoyle character in ZBrush. Key methods covering modelling, texturing, lighting and rendering will be outlined over the course of the series and culminate in a chapter on post production and how to composite numerous render passes into a final image.

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PART 1: This tutorial will outline some of the prominent approaches to building the church interior. We will cover some of the key methods and modifiers responsible for creating the scene and core geometry.

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Gothic Church
INTERIOR CREATION
PART 4: LIGHTING & RENDERING

Created In:

Maya

In this part of tutorial, we will go through the rendering process.

PART I – LIGHTING SETUP

Let's start at the very beginning and create two spotlights for an overall lighting of our environment.

The first spotlight will be cast directly at the top-front of the scene, and we'll make the colour slightly green, following the colour tone of the 2D concept painting. Decrease the Intensity to around 0.15, and increase the Cone Angle to 150. We won't apply any shadow for the light.

The second spotlight will be placed behind the arcade wall, where the light is coming from the windows. Change the colour to the same green-like one that we used for the first spotlight (this colour won't represent the warm sunlight from the window, but an environmental colour tone). This time decrease Intensity to 0.5; set the Cone Angle to 170, and increase the Penumbra Angle to 40 (this will soften the edge of the spotlight). Under the Shadows section, check Use Ray Trace Shadows, increase the Light Radius to 0.2 (this will soften the edge of the shadow) and increase the Shadow Rays to 5, as well (this will decrease the noise when we soften the edge of the shadow; at the same time, the render time will increase by a higher number of the rays) (**Fig.01**).

Now we're going to light up only the church windows with an Area light. So create an Area light, scale the size and place it just at the front of the church windows. Decrease the Intensity to 0.6. Now we're going to make sure this Area light won't affect any other object inside our
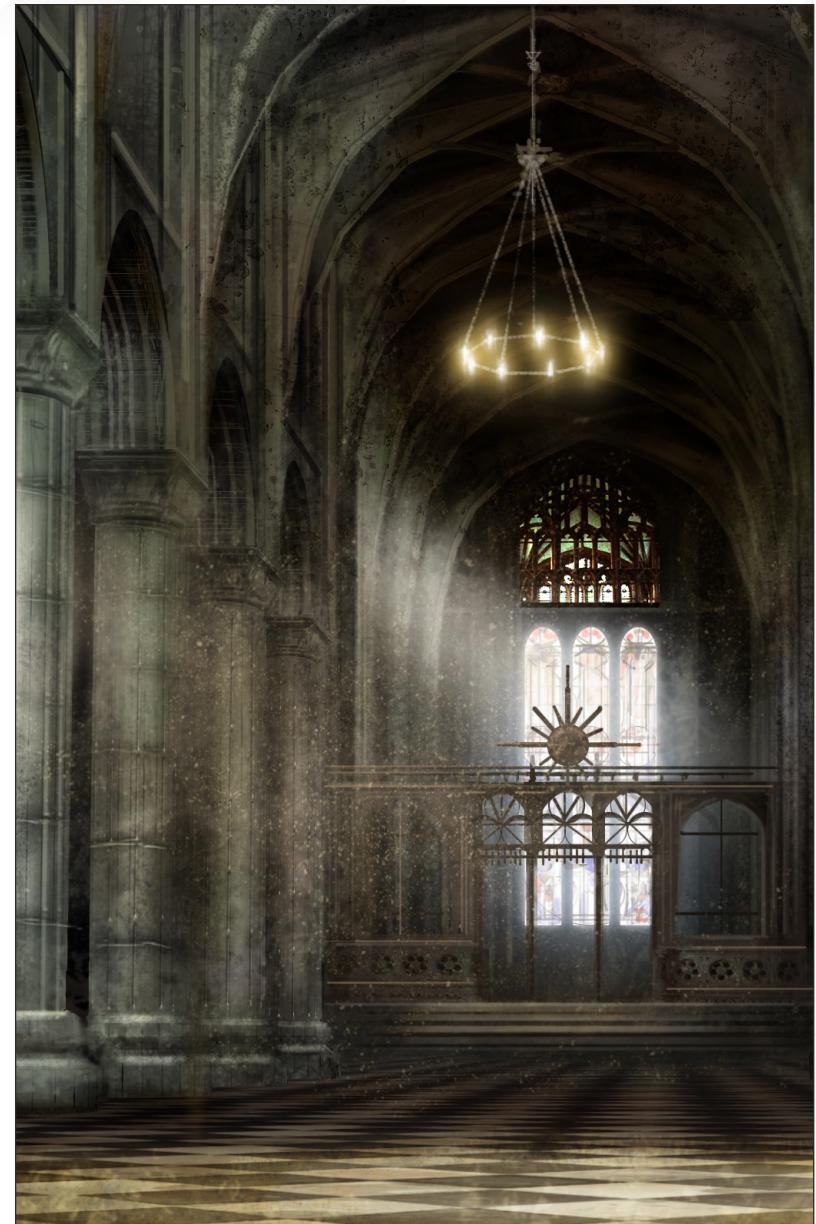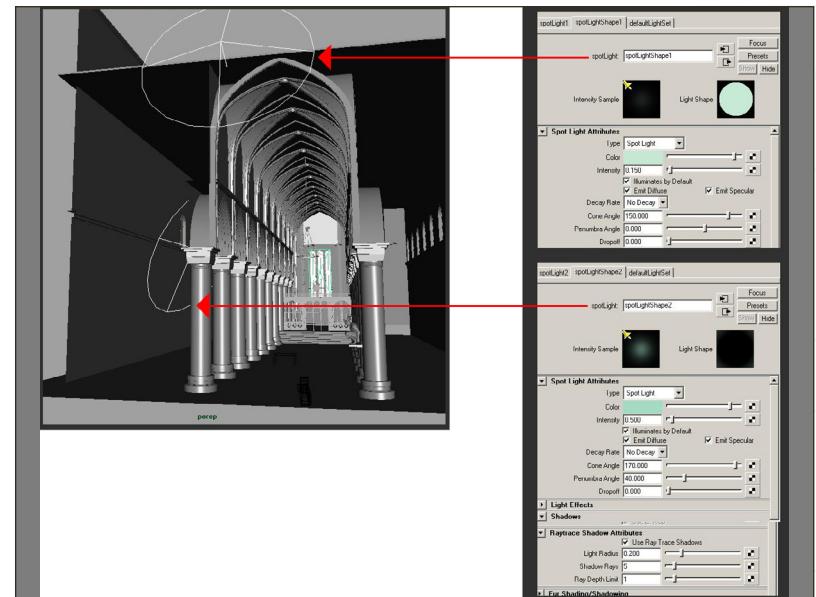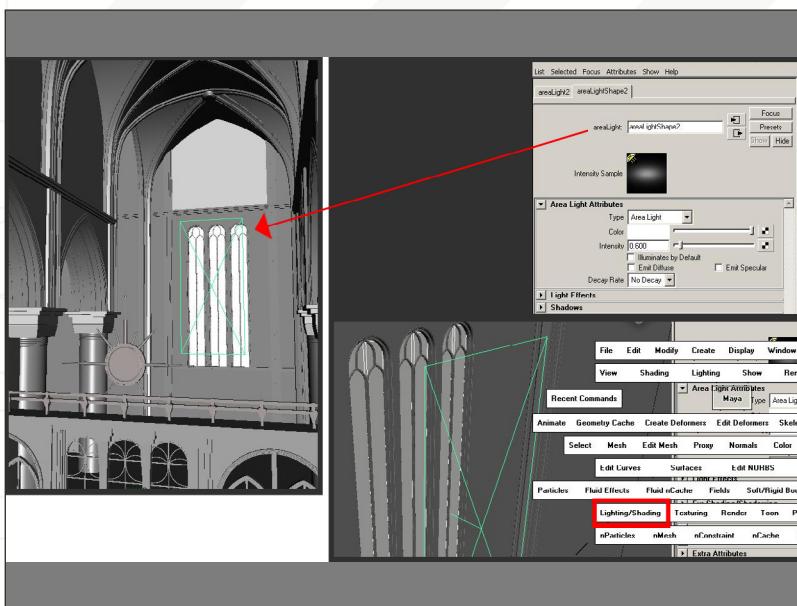

Fig.01

Fig.02

scene, other than the glass in the windows. To do this, simply select all the objects in our scene (apart from the two spotlights), along with the Area light. Go to the Hot Menu (press the space bar on your keyboard) > Lighting/ Shading > Break Light Links. At first, this will break up the illumination function between the Area light and all the objects in the scene. Now simply select only the glass in the windows and the Area light. At this point, go back to the Hot Menu and "Make light links" between only these two (**Fig.02**).
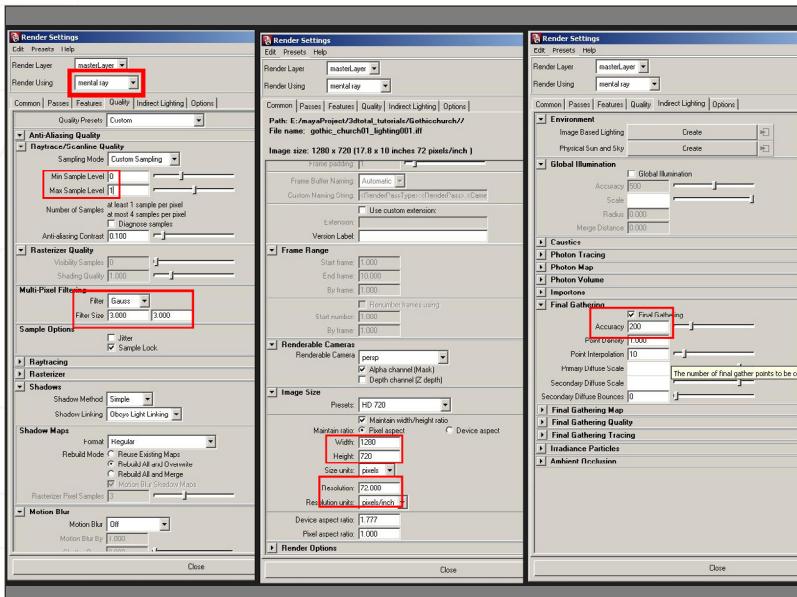
Fig.03

Now, before doing the first test render, let's go to Window > Render Editors > Render Settings. Inside the rendering settings menu, change the image size to preset HD720. Turn on Final Gathering under the Indirect Lighting section (this will calculate the indirect lighting inside our scene; later we will go through the basic idea of indirect lighting with another example), and change the Accuracy to 200. Set the Sampling mode to 0 - 1, and use a Gauss filter (**Fig.03**).
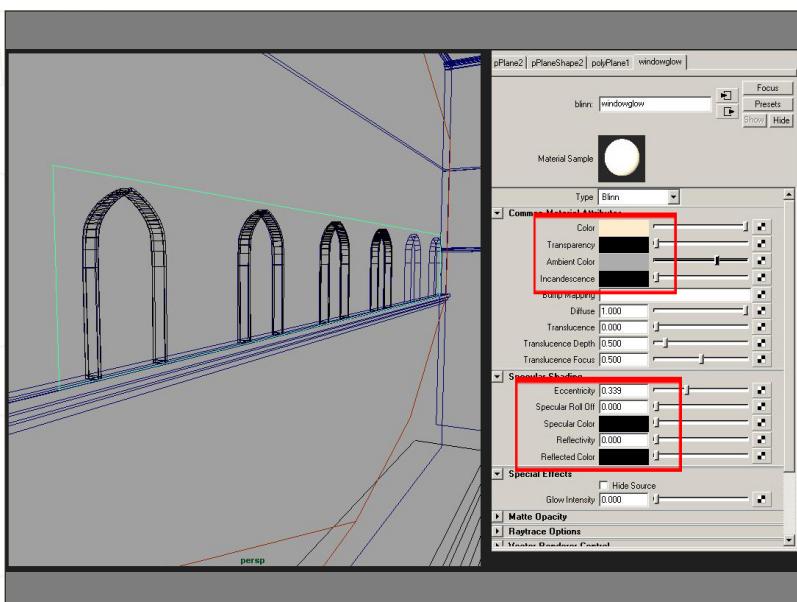

Fig.04

Now we're going to create a Polygon Plane and place it just at the position where the windows are, and we will also apply a Blinn shader to it. This time we'll change the colour to a slightly warm tone; decrease the Reflectivity and Specular Roll Off to 0, but increase the tone of the Ambient Colour, because we're going to render with Final Gather (Indirect lighting) – this means we'll be using this as a light source, as well (**Fig.04**).

Here are two examples of the shading network, showing how to apply the texture maps that we created before with Photoshop. Apply the Blinn shader for almost every object inside this scene (**Fig.05 & Fig.06**).
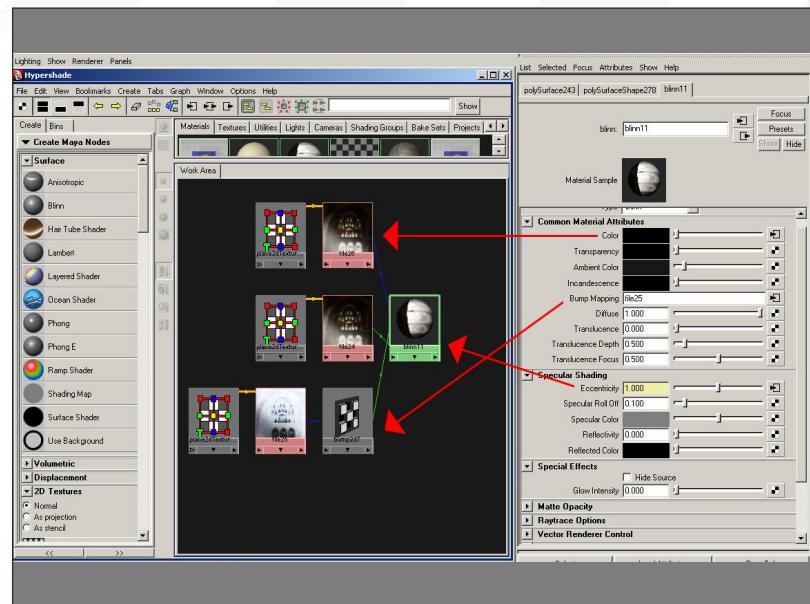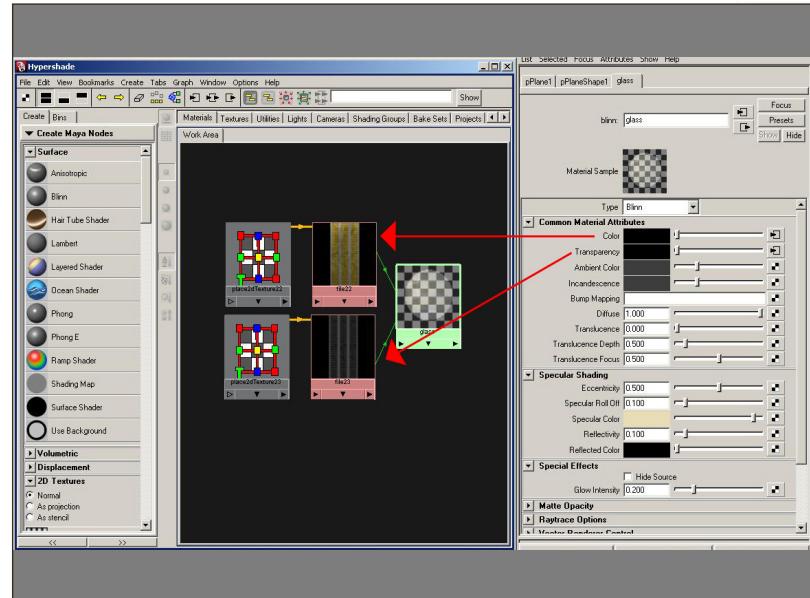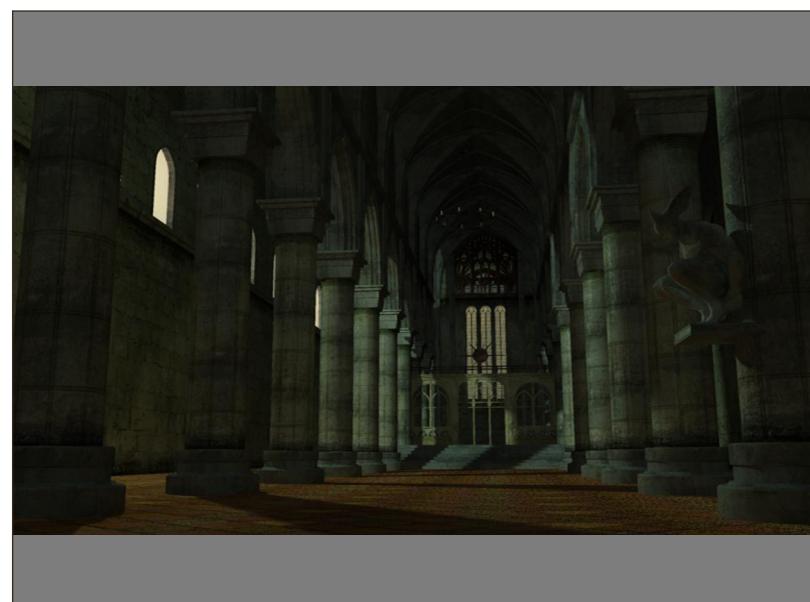
Fig.05

Fig.06

Now let's move on and make our first test render (**Fig.07**).
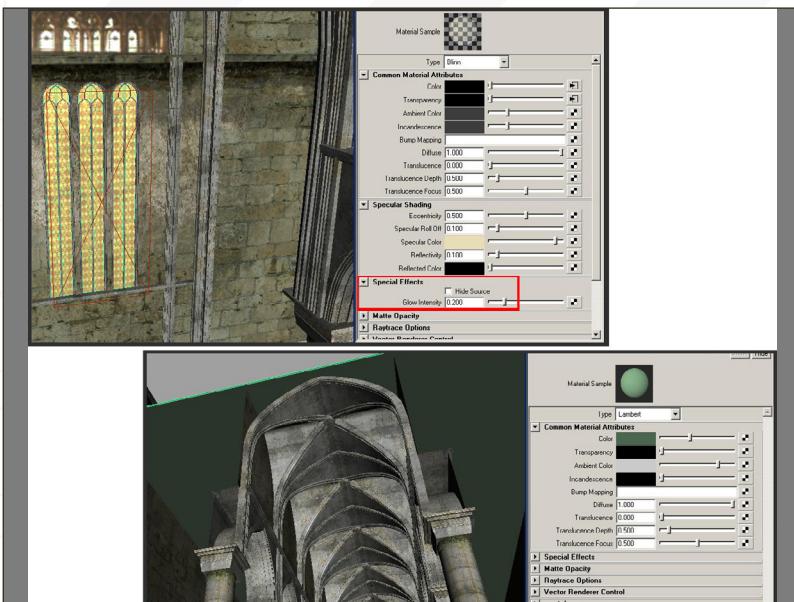
Fig.07

Fig.08

Fig.09

Fig.10

From the first test render, we get the basic lighting for our scene. From here, if we brighten the Ambient Colour of the polygon plane on the windows, it will increase the amount of light from the windows, with Final Gather (indirect lighting) turned on.
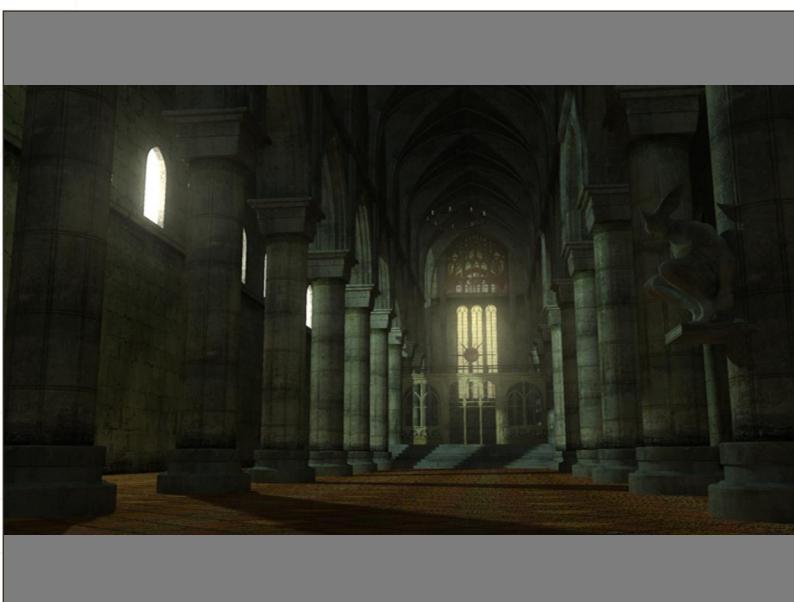
Glow Effect

Now it's time to create a bit of atmosphere for our scene. We're going to create a glow effect for our light sources (we can do this in post-production, because the light glow in a Maya render is actually an add-on post effect). Let's go back to our shader; if we select our glass windows behind the altar, inside the Attribute Editor we will find our material tab which we applied for the object. Scroll down to the Special Effects section of the material, where we'll find the Glow Intensity. Increase the amount to 0.2 for the windows behind the altar, and give an amount of 0.2 to the object on top of the windows. Give the amount of 0.4 to the polygon plane in between the windows, behind the arcade wall.
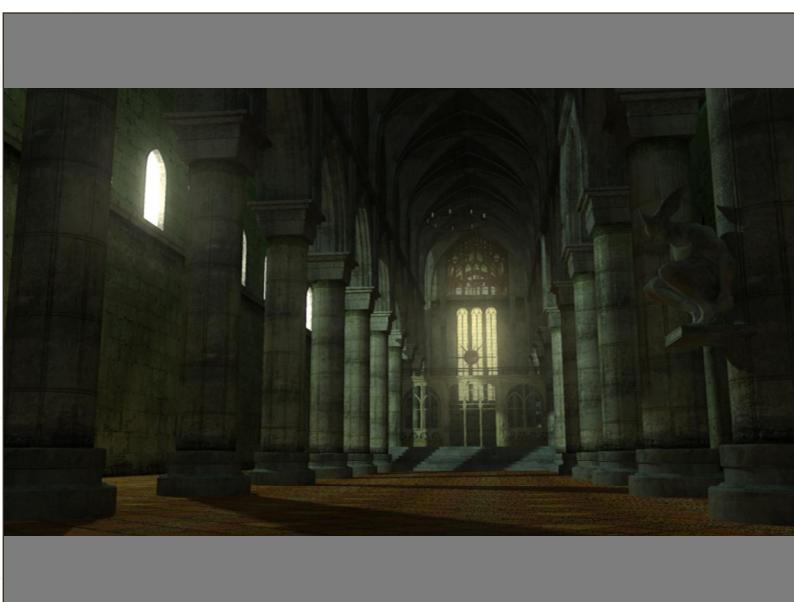
For the next step, create another polygon pane, scale the size of it and place it on the top of our scene. Apply a blinn or lambert (lambert is a material without reflection; it can save some time to turn off the refection of the material), change the colour to green, and increase the ambient colour, as well. We will use this polygon plane to cast some green light from the top of our scene (**Fig.08**).

Now let's do another test render (**Fig.09 & Fig.10**).

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Volume Light

Now we've got the basic lighting setup for our scene, but what's missing is the high-key lighting which can make our scene become much more interesting. Because the atmosphere it supposed to be dusty, we will use the Volume light to create some volumetric light sources with a dust effect.

First let's create a Volume light, so open and edit some settings inside the Attribute editor. Give a warm colour to it and increase the Intensity to 12. Change the light shape to Cone, and Volume Light Dir to Down Axis. Now go back to the scene and scale and place the Volume light in a position from the first windows, behind the arcade wall, to the gargoyle. Change the radius of the volume light source in the Attribute editor until it is able to cover the gargoyle (**Fig.11**). Turn on the Raytrace shadows, and let's do another test render.

Now we have a high-key light casting down on the gargoyle, following the shape of the Volume light. The shape seen is not so clear at the moment; later on we will add in the dusty effect – but before that, let's increase the amount of Light Radius to 1 (the shadows rays to 5) to avoid the overlapped shadows (**Fig.12**).
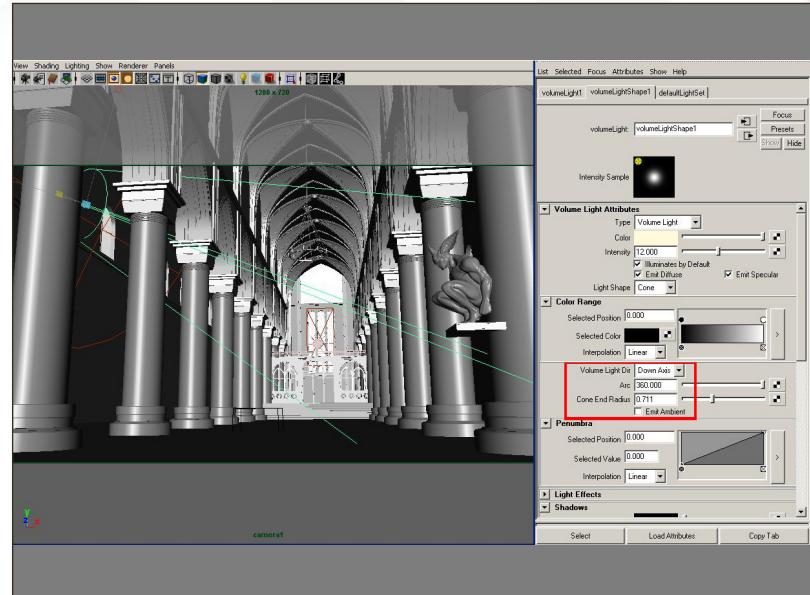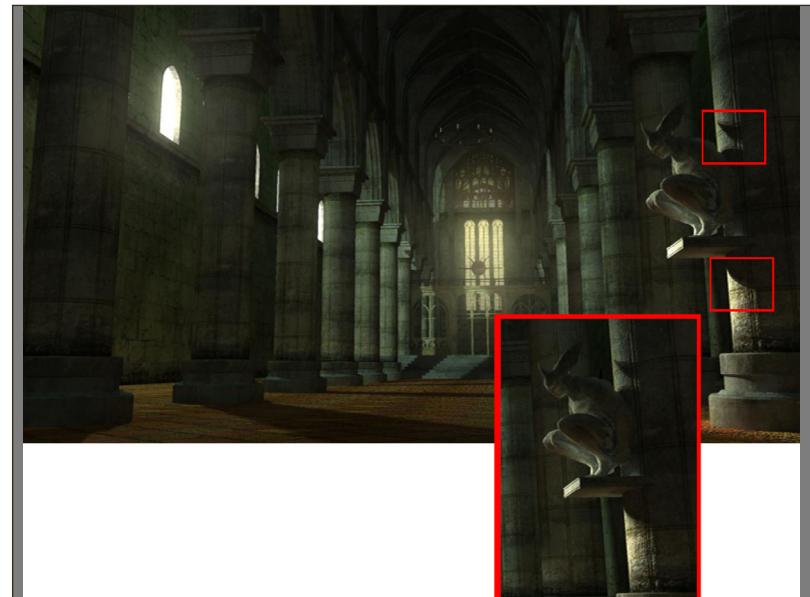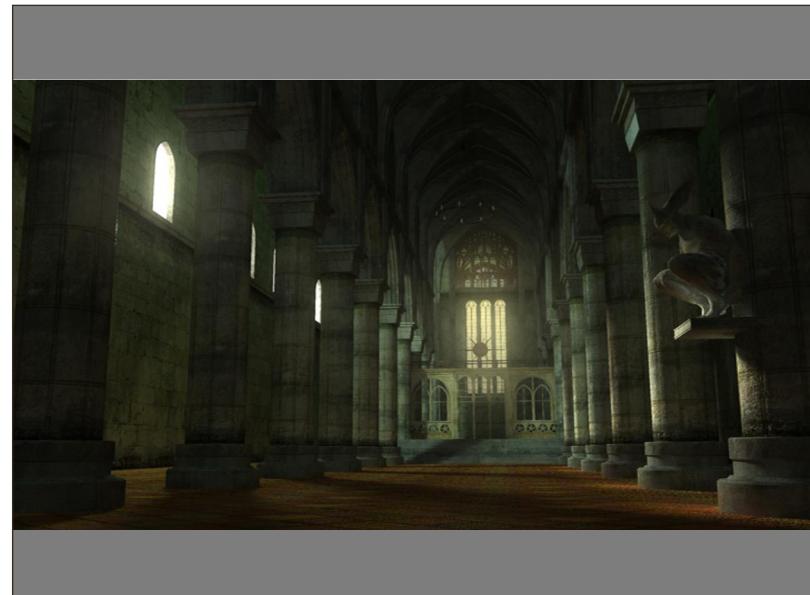
Once we are satisfied with the result, we can duplicate the volume light and position them behind every column up to the altar **(Fig.13)**. At the same time, let's soften the shadows of the columns which relate to the spotlight behind the arcade wall.
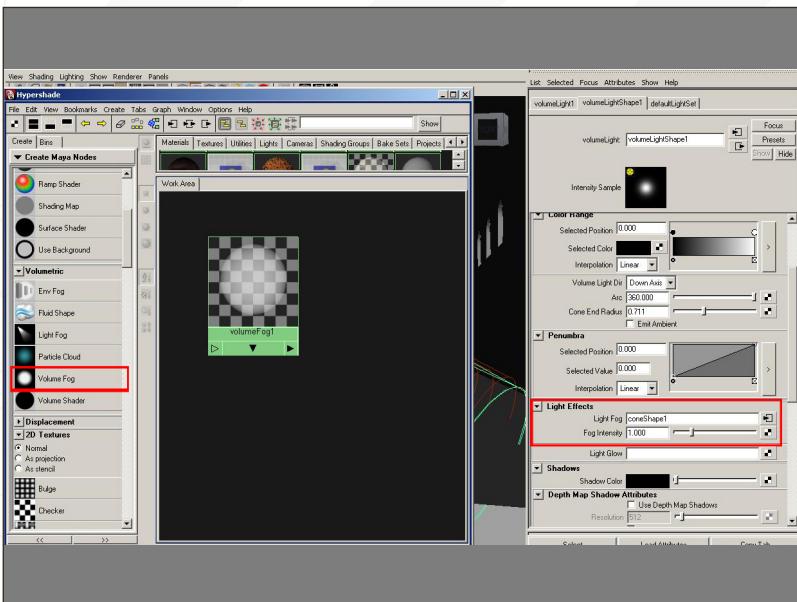
Fig.11

Fig.12

Fig.13

Fig.14

Volume Fog

After we've created the high-key lighting for our scene, we're going to give a dusty atmosphere to the scene by adding a Volume Fog to our Volume light. First, let's create a Volume Fog inside the Hypershade and switch to the Attributes editor of the Volume light. Scroll down to the Light Effects section, then drag and drop the Volume Fog to the Light Fog section of the volume light (**Fig.14**).
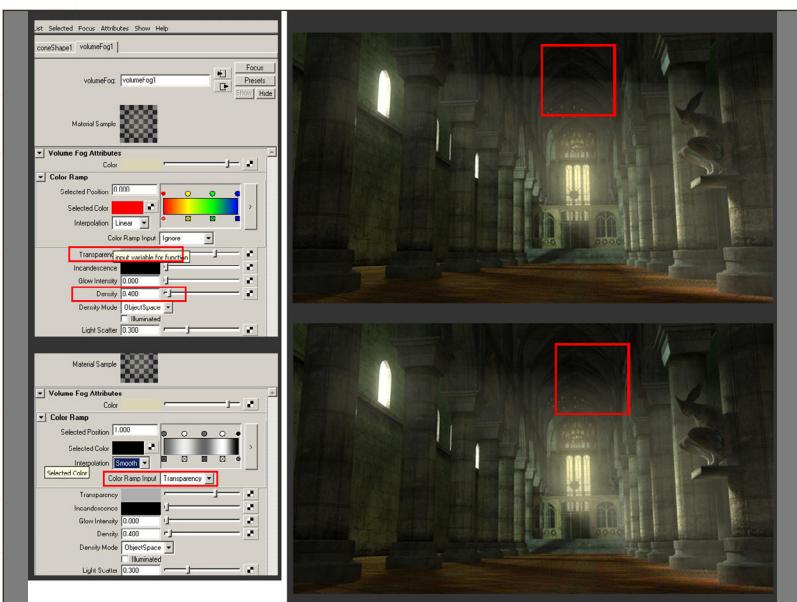

Fig.15

Click on the little arrow/box beside the Light Fog section; this will lead us into the Volume light menu. First change the fog to a grey-brown colour, increase the transparency and decrease the density to 0.4, and lower the Light Scatter to 0.3. If we do another test render right now, we'll be able to see the light fog effect followed by the shape of our volume light. But we can see the edge of the volume fog appears very sharp – it looks a bit unnatural. So let's go back to the Volume Fog settings and this time change Colour Ramp Input to Transparency, and tweak the Colour bar to create a random Transparency for the Volume Fog (**Fig.15**). Now let's apply the same Volume Fog to the last Volume Light, which is at the front of the altar.
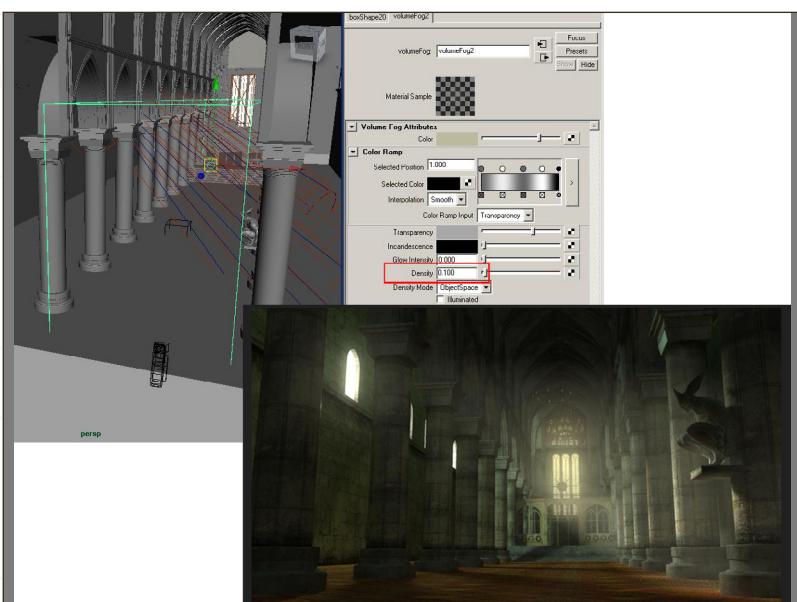

Fig.16

We're almost done now, but we need to create an overall volume fog for our scene as well. So with the same method we used before, let's create another Volume Light in a box shape. Scale and place it at the centre of the scene and create another Volume fog with the same settings, but decrease the Density to 0.1 (**Fig.16**).

Now it's time to go back to the Render Settings; this time change the Min/Max sample level to 0/2. We'll be using Mitchell as the Filter for rendering. Increase the Resolution to 300dpi (print quality), and increase the Final Gathering > Accuracy to 500 points – this will sharpen our render and decrease the noise) (**Fig.17**).

PART II - RENDER PASSES

In this section we're going to create render passes for our scene; in the next chapter you'll be shown how to composite them together in Photoshop.

"Volume Fog" Pass

Let's create a pass for the volume fog. First, switch to the Render section in the Layer Editor. Select all the objects inside the scene and create a new render layer by clicking the second box from the right-hand side. Rename it "volumetric" (or whatever you prefer).

In the Hypershade, create a "Use Background" shader and apply it to all the objects inside the scene. Turn the Reflectivity to 0, Reflection Limit to 0, and keep the shadow mask. With this shader we will be able to render only the volume fog with an alpha channel. Later on we will be able to control this layer separately (**Fig.18**).

"Occlusion Layer" Pass

With the same method, let's create another layer for the occlusion pass – this time don't put any lighting inside this render pass layer. Now, if you are using a Maya version prior to 2009, you can simply right-click on the render layer in the Layer Editor and this will bring up a pop-up menu where you can choose a preset of Occlusion pass. In Maya 2009, this preset no longer works, but you still can go to the Attribute Editor and click on the Presets under the render pass layer tab.

After the Occlusion pass shader has been applied, the scene should appear black in colour. Now let's go to the Attribute Editor and change some settings on the occlusion shader.
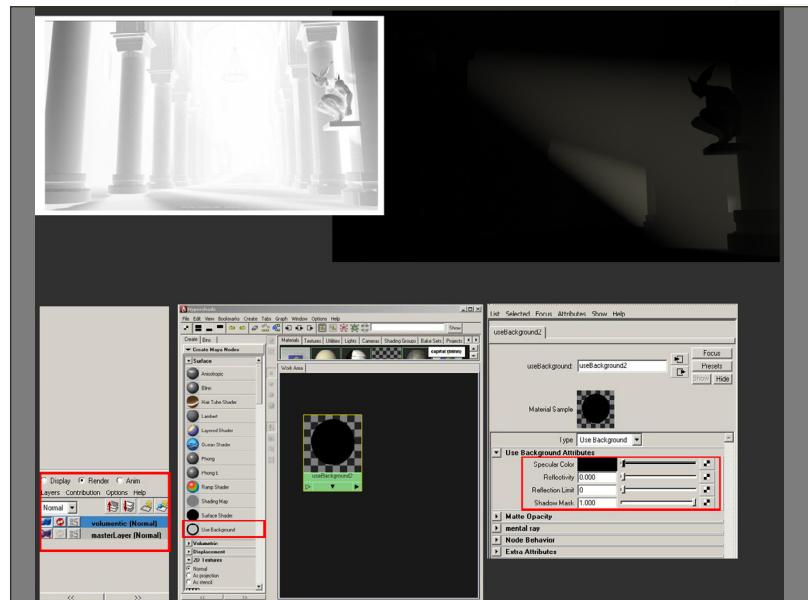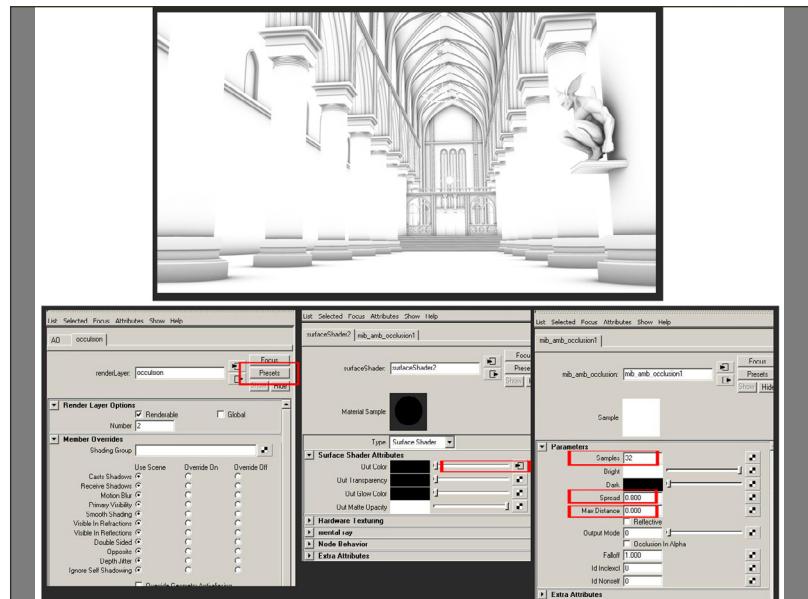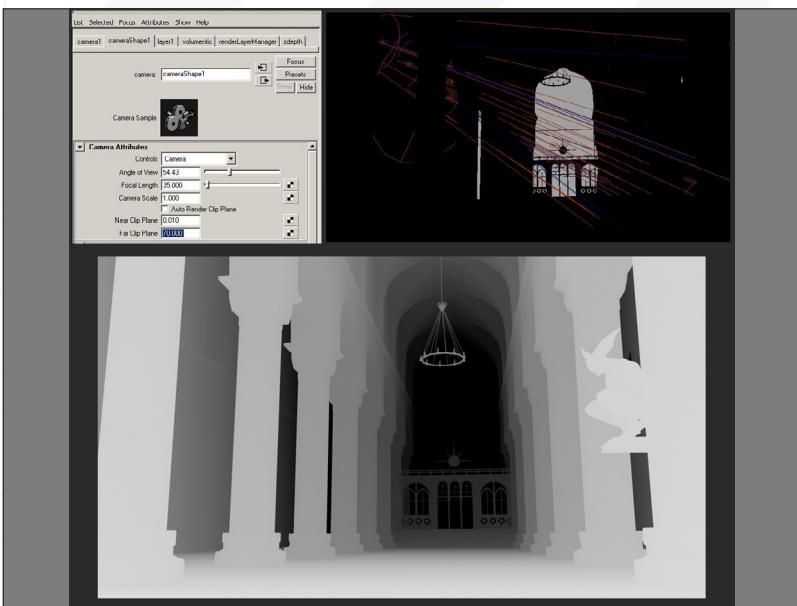

Fig.17

Fig.18

Fig.19

Fig.20

Fig.21

Fig.22

First, increase the sample to 32 or higher, until the noise is acceptable (this will both decrease the noise and increase the render time). Increase the spread to 1 and the Max Distance to 2 (**Fig.19**).
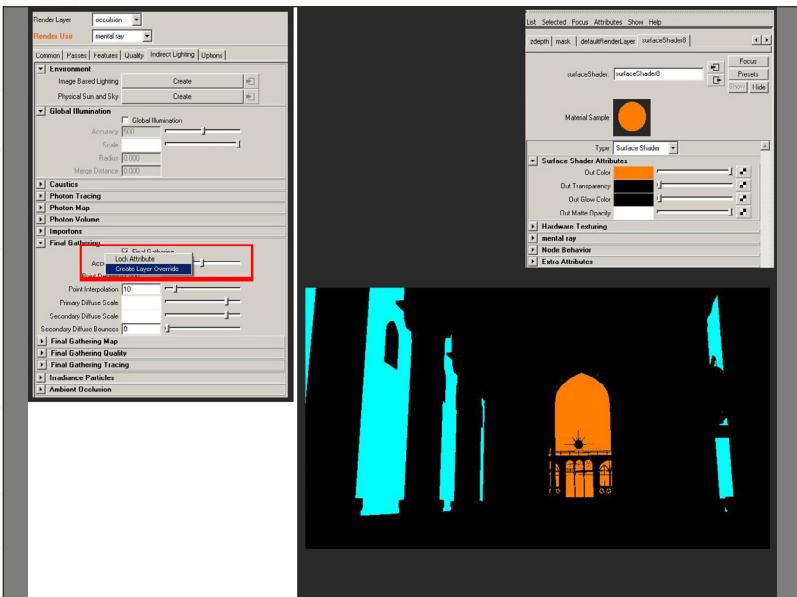
"ZDepth" Pass
We will now create another pass for the ZDepth pass; the same applies here as for the Occlusion pass. Under the Presets section we will be able to find the Luminance pass. Now, in the Attribute Editor, select the render camera, uncheck the Auto Render Clip Plane (this will allow us to control the near and far clip plane) so that we can control the depth of our render. As you can see in **Fig.20**, the grey colour behind the altar in the camera view represents the position where our ZDepth map starts to turn black in colour.

"Mask" Pass
We will create another render pass layer for the colour mask now – just apply a Surface shader to those objects we think it will help us on masking in the postproduction (for example, the walls behind the arcade, or those objects behind the altar). Change the Out Colour on each Surface Shader (**Fig.21**).
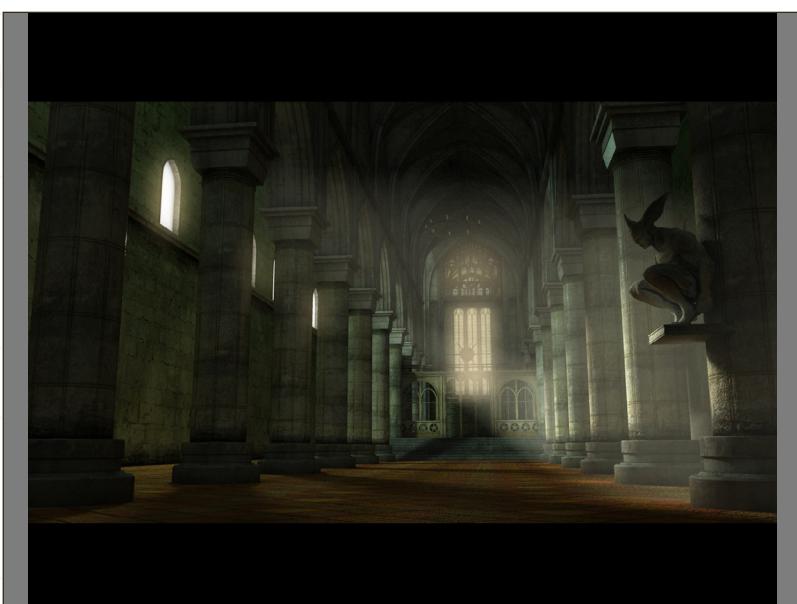
Here is one thing to mention: When we apply every Presets pass layer, Maya will automatically change the render settings to fit the pass, and there will some highlighted orange coloured sections in each tab of the render settings. This will help us to not mess up our render settings. Sometimes we can add/change some sections by ourselves to serve our needs; for example, when we render the Occlusion layer, the Final Gathering is not necessary, but by default it's turned on, so let's go to the Final Gathering check box. Right-click on it – this will bring up a pop-up a menu allowing us to choose Create Layer Override. Now the Final Gathering check box will turn orange, and this means that it won't affect another render pass layer.

Well, now we have come to the end of this chapter, we will create another render pass

layer for our basic render without the volume fog; this time we just increase the Transparency of every Volume Fog to its maximum value.

MERGED RENDER PASSES

Here is the final result merging all the render passes together in Photoshop (**Fig.22**). This version is without any additional post-production. In the next part of the tutorial, post-production artist, Zoltan Korcsok will guide you through the process of post-production in Photoshop.

So here comes – again – the end of another chapter. I hope you are enjoying this tutorial series and many thanks for following the Maya version with me.

GOTHIC CHURCH
INTERIOR CREATION
PART 4: LIGHTING & RENDERING

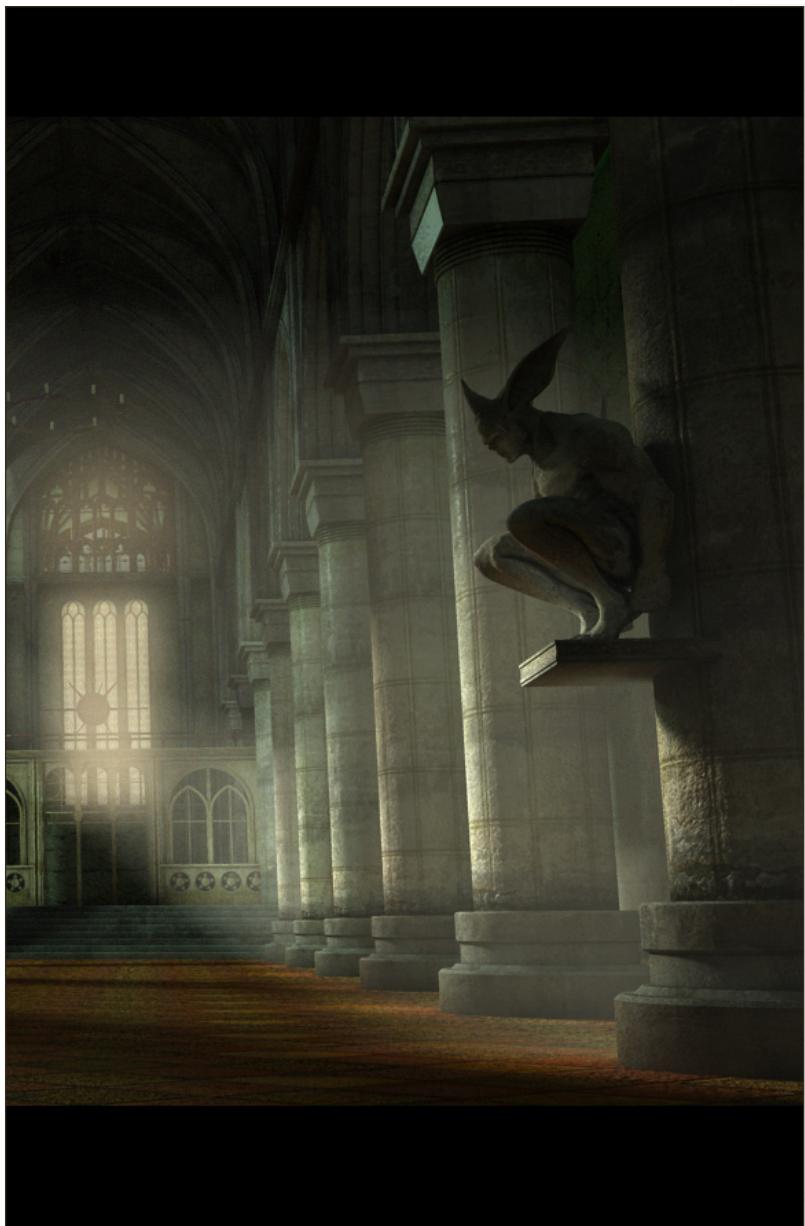## TIONG-SEAH YAP

For more from this artist visit:

http://www.schokoladenmann2plus3.blogspot.com/

Or contact:

tiongseah.yap@hotmail.com

Gothic Church

Interior Creation

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Gothic Church
INTERIOR CREATION
PART 4: LIGHTING & RENDERING

Created In:

Modo

SETTING UP THE MATERIALS

When it comes to setting up all the stone materials in the scene, there is really nothing more to it than what I showed you in the last chapter. The only thing you might have to do is adjust the Bump Strength of the material (**Fig.01**).

The window material for the stained glass window in the back gets a bit more complicated – but just a bit. First we need to turn down the Diffuse Amount of the material to 0%. Switch over to the Material Trans tab, turn Transparent Amount up to 90 or 100% and set Refractive Index to 1.6666. Finally load the window texture we made into the material, and set it to Transparent Colour. Oh, I lied, there is one more thing we need to do before we are finished with this material: we need to create a new render output that will be placed inside this material (**Fig.02**).

In this render output we will turn on Bloom, to give us a sort of fake volumetric light coming from the window (**Fig.03**). You may have to play around with the Bloom Threshold and Bloom Radius settings, as their effect could differ from my scene to yours. This will be rendered as a separate image, which we will screen on top of our main image inside of Photoshop.
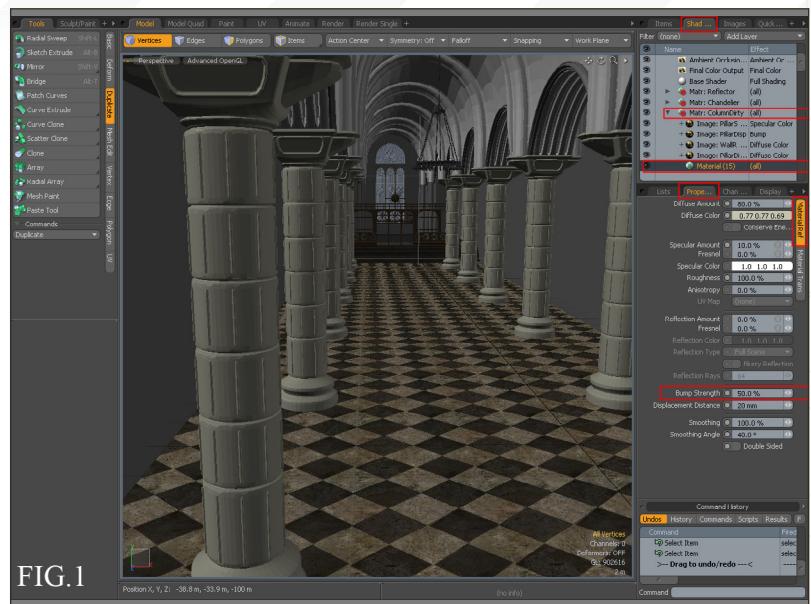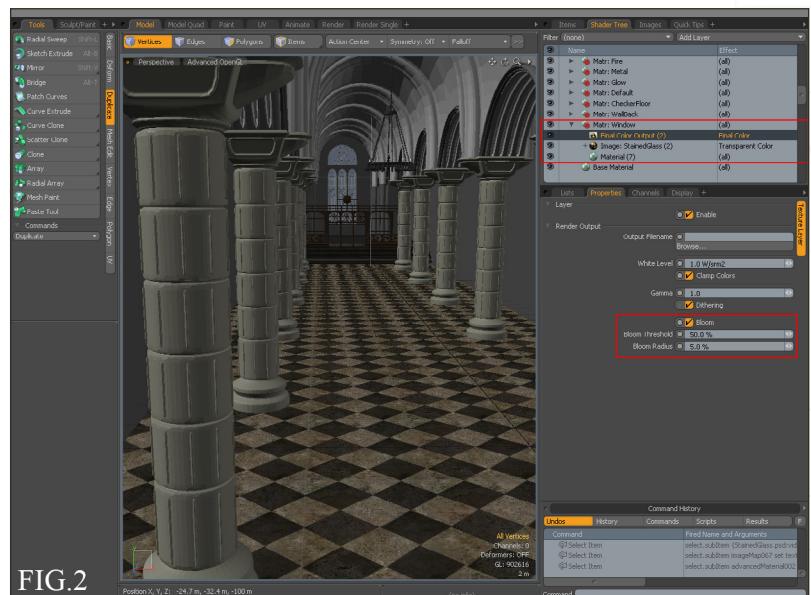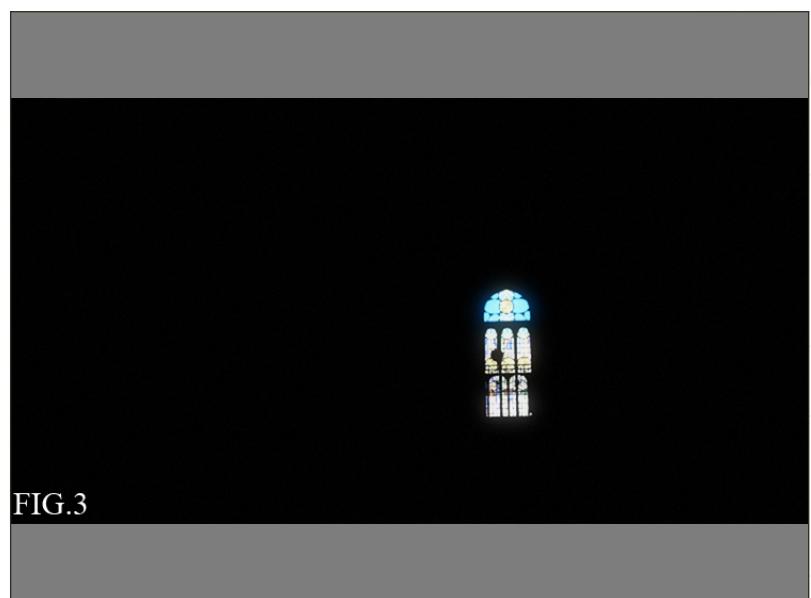

Fig.01

FIG.1

Fig.02
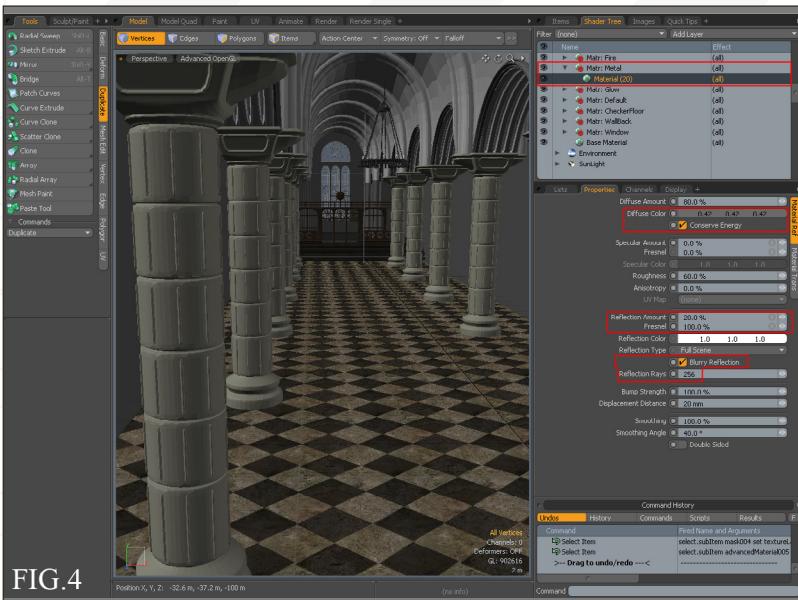
FIG.2

Fig.03

FIG.3

FIG.4

Fig.04

Next, we will set up the material for the chandelier and altar. Since we want both of these to be made out of metal, let's make one material and duplicate it, and then adjust the colour of it. First, change the Diffuse Colour to some dark/mid grey, and check the Conserve Energy box. Turn off Specular completely, and set the Reflection amount to 20%, Fresnel to 100% and tick Blurry Reflections. That should be everything you need (**Fig.04**). Duplicate this and assign the duplicate to the altar, with a brown/coppery diffuse colour.
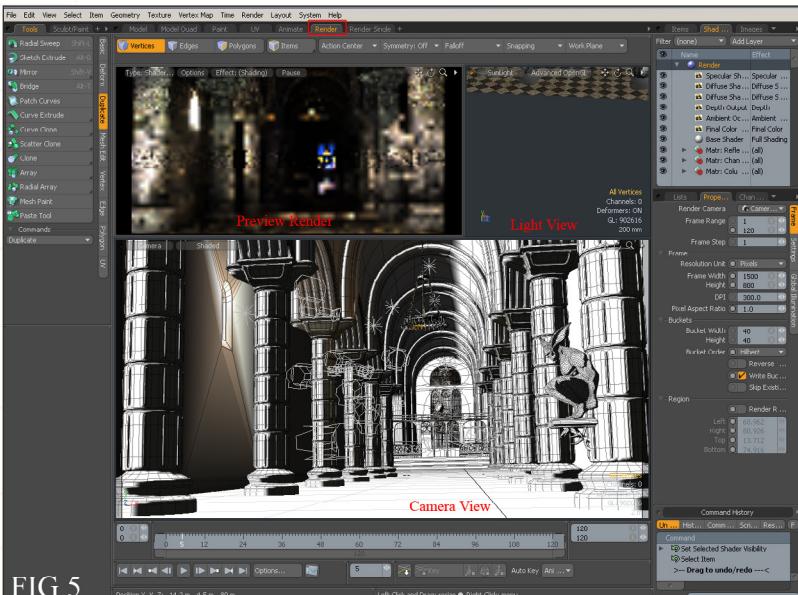
The final tiny little material we need to set up is for the wax candles. For this go to the Material Trans tab, and set Subsurface Amount to 100% and the Subsurface Colour to something orange.

RENDERING TIME!

Now it's time to start setting up our lighting. For this, we will need to switch over to the render interface (**Fig.05**).
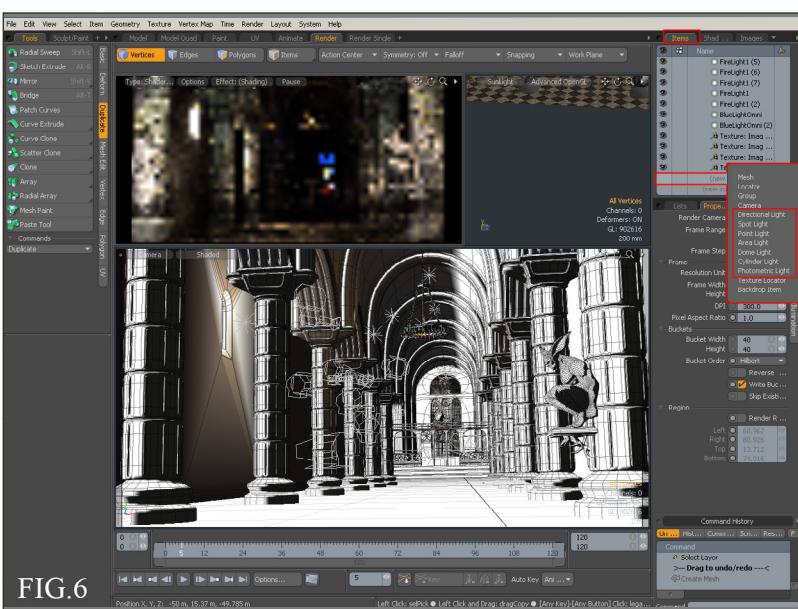

FIG.5

Fig.05

Now, to render your image, hit F9. To create new lights, click (new item) in the Items tab and select the light type you want (**Fig.06**).

FIG.6

Fig.06

Since every light is a separate item, you will have to go to Item selection (5) to be able to select and move them in the viewport (**Fig.07**). The first thing you need to do is to create a camera from which you will render – actually there should be one in the scene by default, so select it in Item selection mode and place it at a similar angle as in the concept.
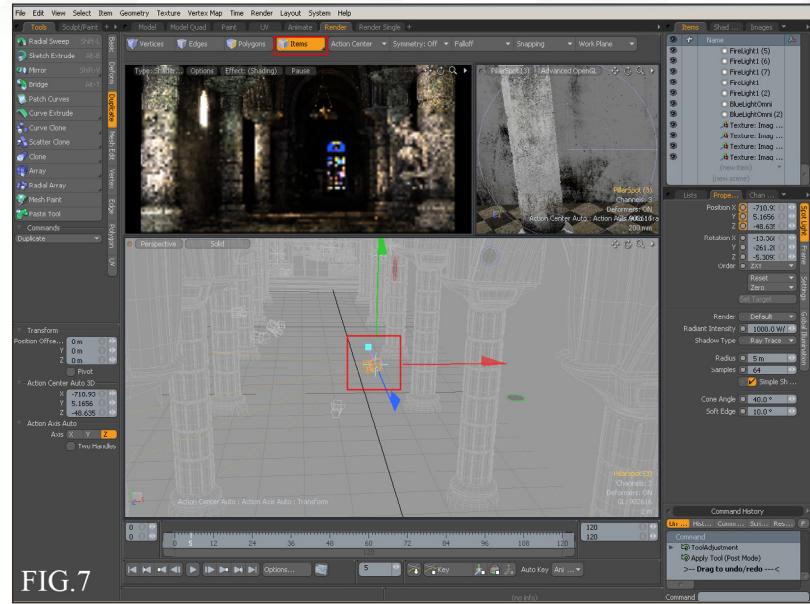
Fig.07

FIG.7

Ambient Lighting

For the ambient lighting in the scene we will use modo's Physical Sun. Let's begin by taking a look at how I set up the scene (**Fig.08**). As you can see, I left the area behind the camera wide open, so that we can get some nice sunlight streaming in, highlighting the columns closest to the camera. To turn on Physical Sun, go to the Directional Light that is in the scene by default, and check the box for Physical Sun. This will give you access to some settings that allow you to change the date, world location and time of day. You will simply have to play around with these until you have an ambient light that satisfies you.
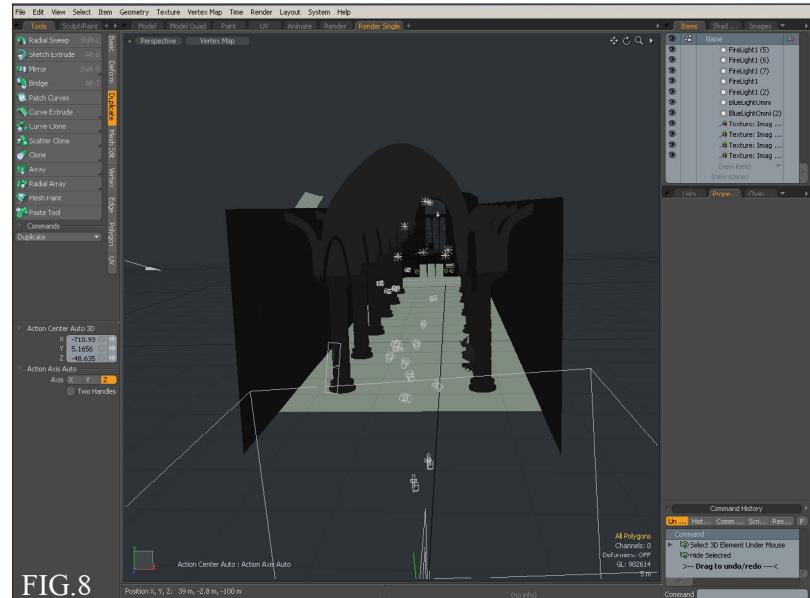
In **Fig.09** you can see the settings that I ended up with. Also, go to the Environment Material and set Environment Type to Physically Based Daylight.
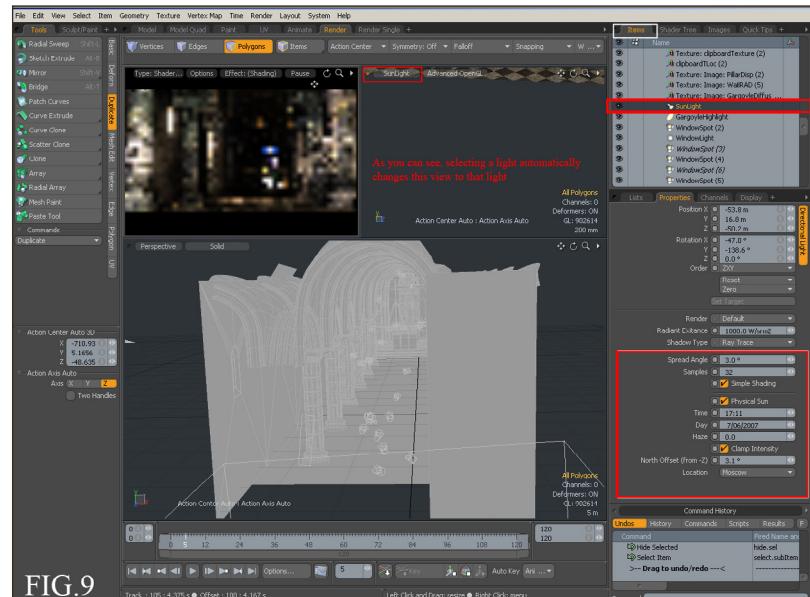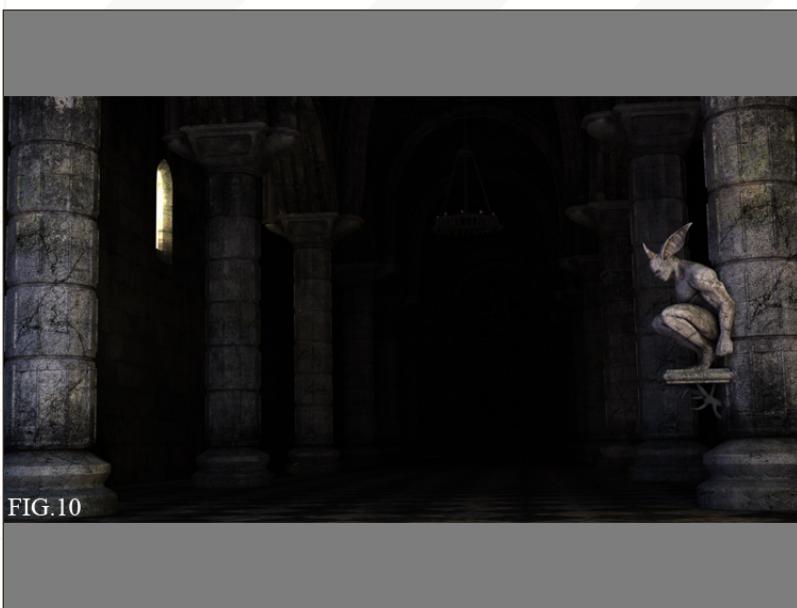
Fig.08

FIG.8

Fig.09

FIG.9

FIG.10

Make sure that the sun is aimed so that it shines through the little window on the sidewall (**Fig.10**). Also, create a simple plane that you can place outside the small window to block the actual sun disc highlight from hitting the church floor, as this is way too bright, creating a completely white highlight.
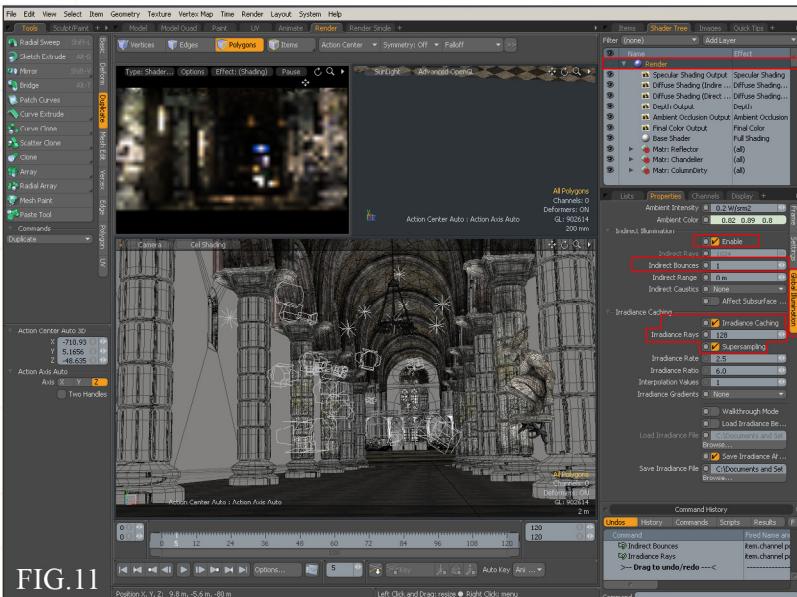

FIG.11

It is important to turn on Global Illumination when working with Physical Sun. I usually start out with just one bounce and 128 rays when test rendering, anything more and the render time will skyrocket (**Fig.11**). For the final render I turned bounces up to 4 and the rays to 256.

DIRECT LIGHTS

Once we have the ambience set up, we can move on to the lights that will give some extra colour and depth to the scene. For this we're going to use a mixture of Spot, Point and Area Lights. I'll just give a quick overview of the settings available on each light. There's really only three settings on them that you need to worry about: first is the Radiant Intensity, the strength of the light; second is the Samples, which is the quality of the light at render time; and third we have Radius, which is the falloff of the light, how much strength it will lose as it gets further away from its source. Spotlights also have the Cone Angle and Soft Edge settings; these are for controlling the angle and sharpness of the light cone created by the spotlight.
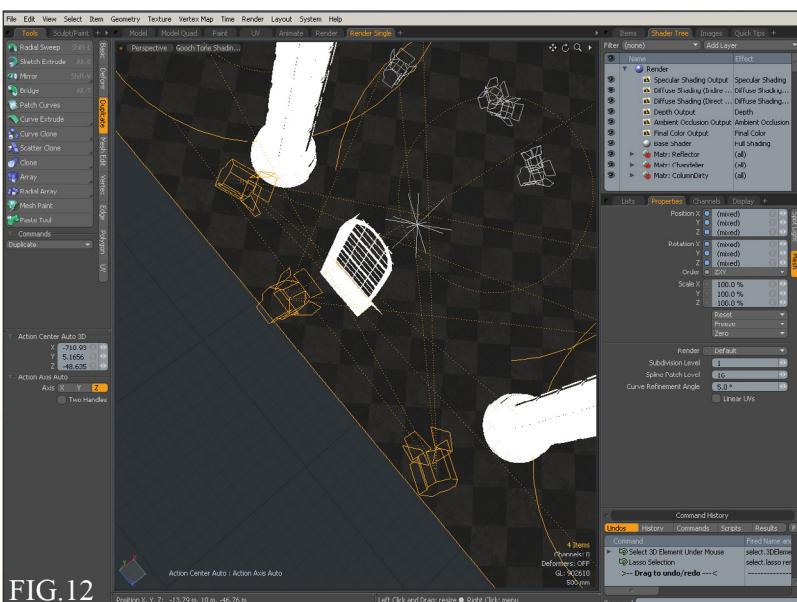

FIG.12

First up is a set of spotlights that we will place outside the little side window; these will simulate the sunlight shining in through the window (**Fig.12**). As you can see there are three spotlights, one is aimed at the floor inside the

church, and the other two are aimed at the two pillars on the sides of the window.

Additionally, place some spotlights inside the church to highlight the pillars on the other side of the aisle (**Fig.13**). Choose the same light colour for all these lights. I generally have to turn up the strength of my spotlight really high to get good results – you will have to adjust them to fit your scene, and tailor individual lights to get the best results.
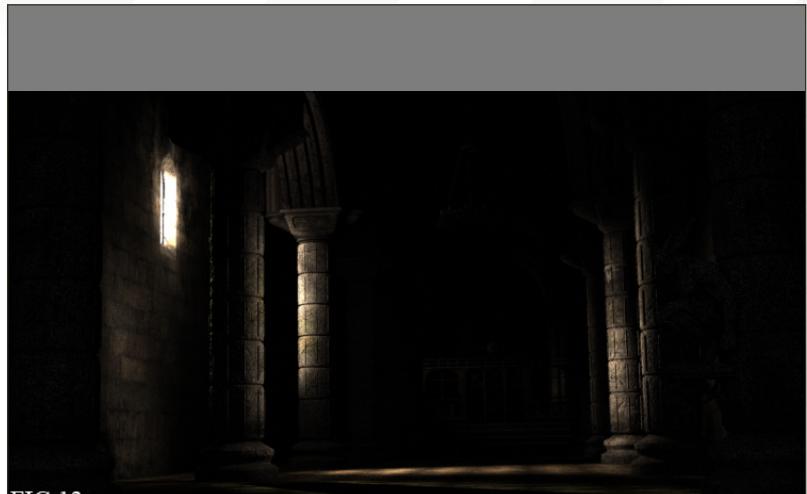
Fig.13

FIG.13

Looking at the concept, we can see that there is a greenish tint going on at the top of many of the columns. To achieve this, use a mix of green coloured point lights and spotlights aimed at the columns (**Fig.14**). Settings on these all vary greatly, so you will have to experiment to see what fits you.
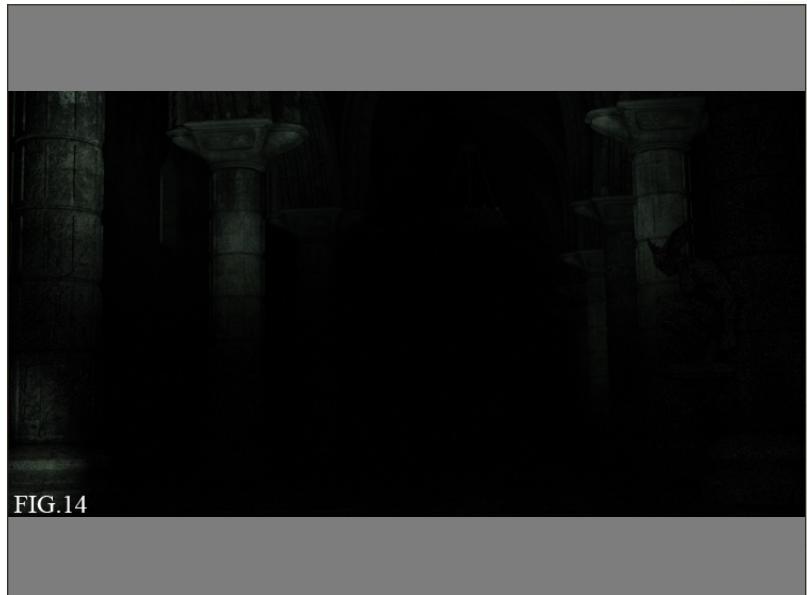
Fig.14

FIG.14

To break up the lighting some more and make it a bit more interesting, let's do exactly the same thing with a few blue spot lights (**Fig.15**).
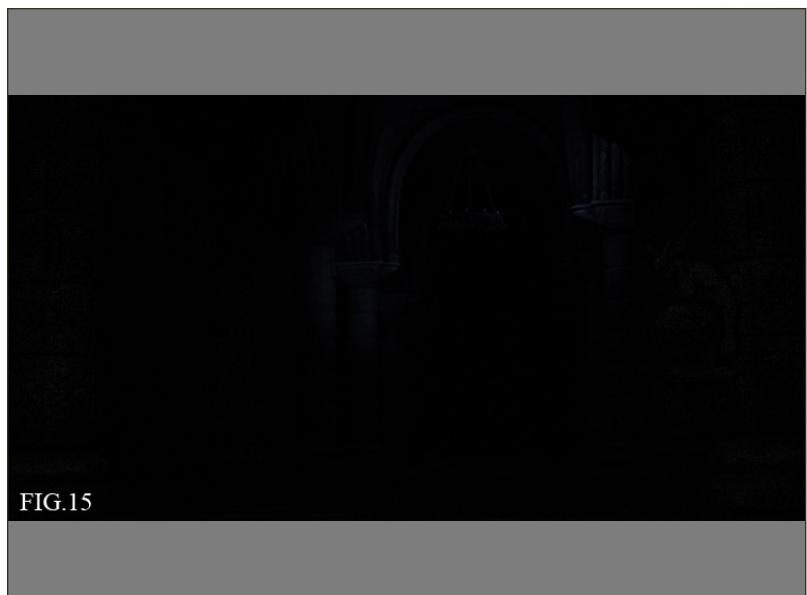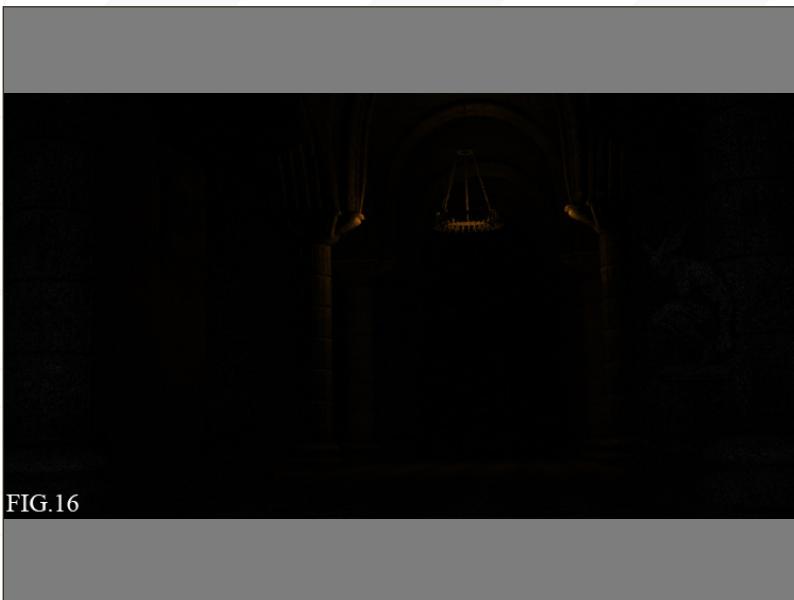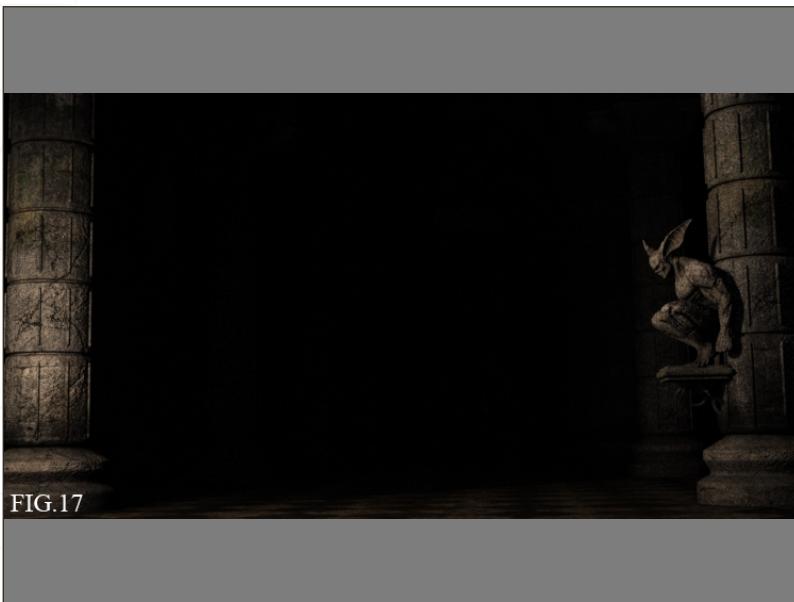
Fig.15

FIG.15

Fig.16

FIG.16

Next we want to try to give the impression that there is some light shining from the chandelier. Begin by placing a very weak, appropriately coloured Point light just above each of the candles in the chandelier; this will give a nice subsurface colouring to the candles. After you have the candle lights placed, make some duplicates of one of them, and place them around the vaulted ceiling, close enough to give it an orange/reddish tint (**Fig.16**).

Fig.17

FIG.17

Now we have come to the final part of our lighting set up: some Area lights to give some extra highlights to the gargoyle and the two front columns. Create one Area light for each of the two columns, and aim them at a slight downward angle towards them. Adjust their size and strength (both of them affect the brightness of Area lights) to give a bright, but not too bright, highlighting of the columns (**Fig.17**).
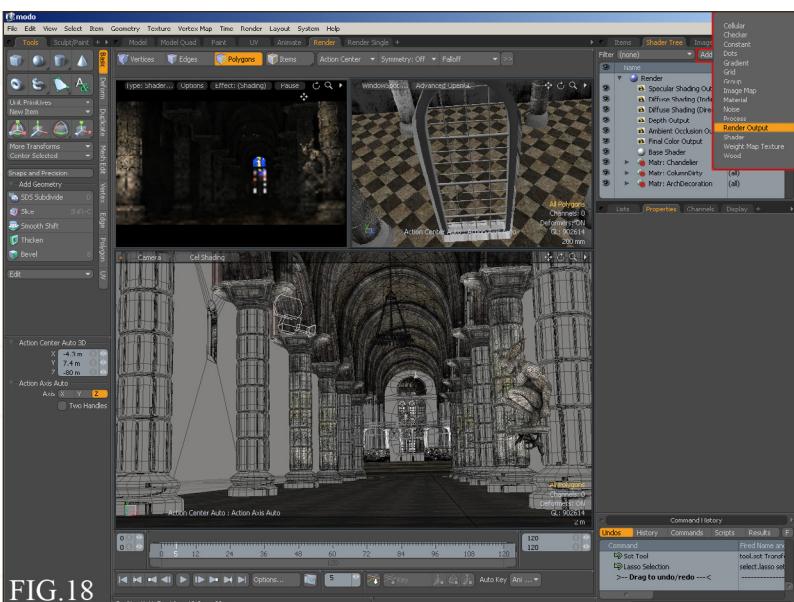

Fig.18

FIG.18

This is the part where we will set up the different render passes that we want our final render to include. It is actually very easy to do this in modo. Just click Add Layer in the Shader Tree, and select Render Output (**Fig.18**). Then select the type of Render Output you want. For this, I went with the following:

Ambient Occlusion – For this layer you need to set the amount of Occlusion Rays you want (the more rays, the less grainy the result). Right-click the output, select Properties and set Occlusion Rays to 256 (**Fig.19**).
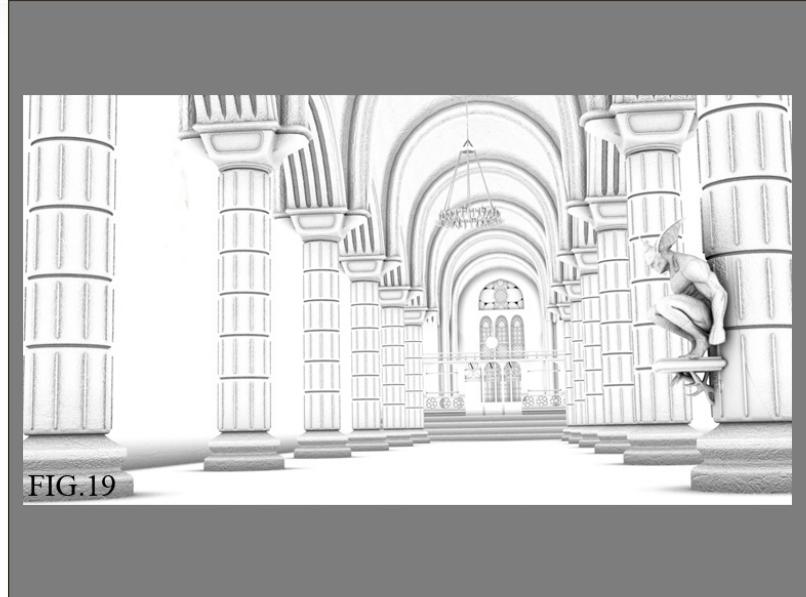
Fig.19

FIG.19

Depth – This layer will be used for post-processing depth of field. To set it up, you need to measure the length of your church and set the Maximum Distance to something above that. You can measure your scene with the Ruler tool (**Fig.20**).

Fig.20

FIG.20

Specular Shading – This contains the specular highlights, which aren't very interesting in a scene full of old stone (**Fig.21**)!
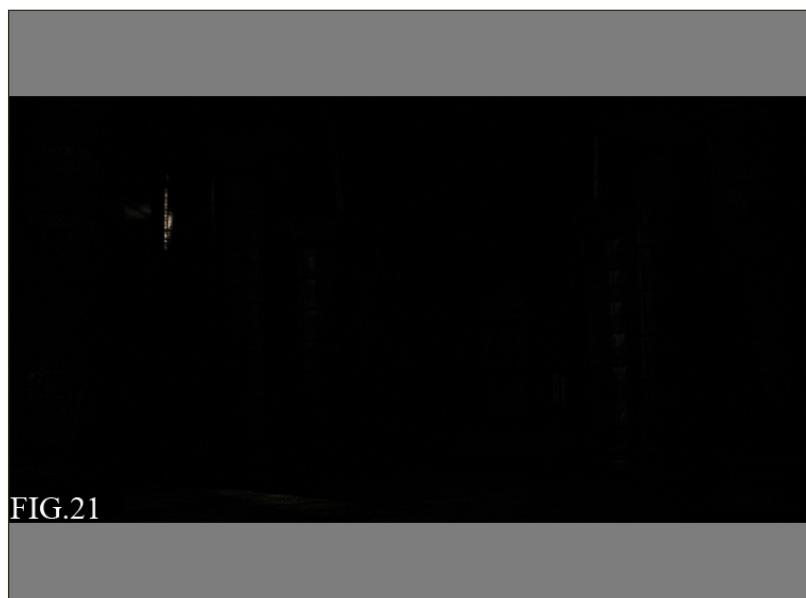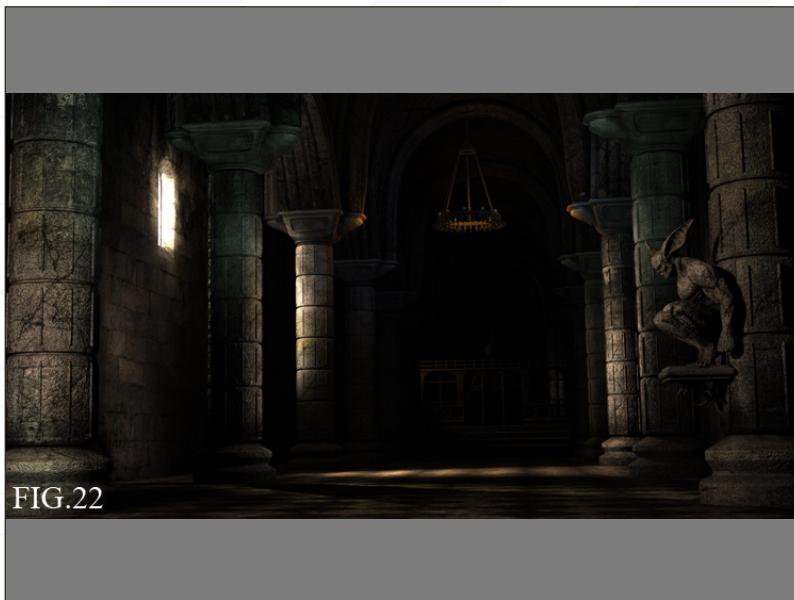
Fig.21

FIG.21

Fig.22

FIG.22

Diffuse Shading (Direct)
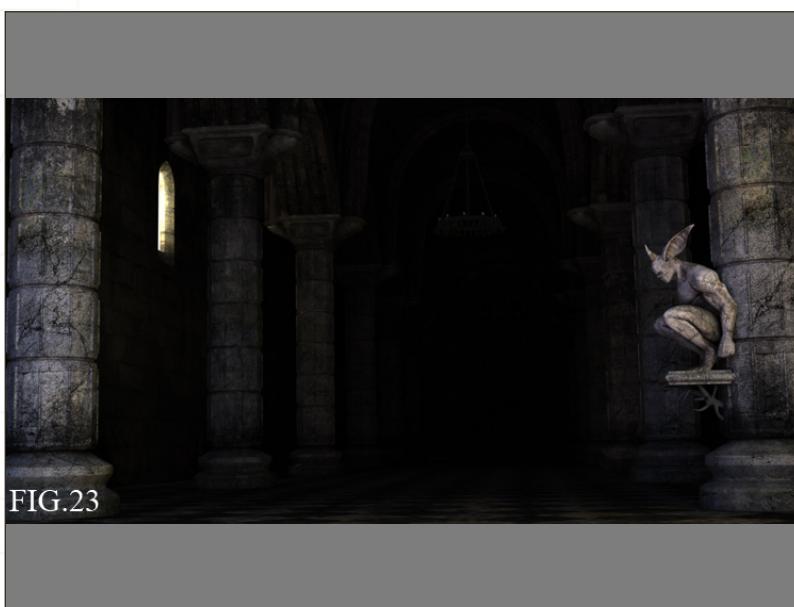This will contain all the direct light in the scene – that is, anything hit by light directly, so no bounced light (**Fig.22**).

Fig.23

FIG.23

Diffuse Shading (Indirect) – This will contain all the ambient light, as well as the light bounce from our direct lights (**Fig.23**).
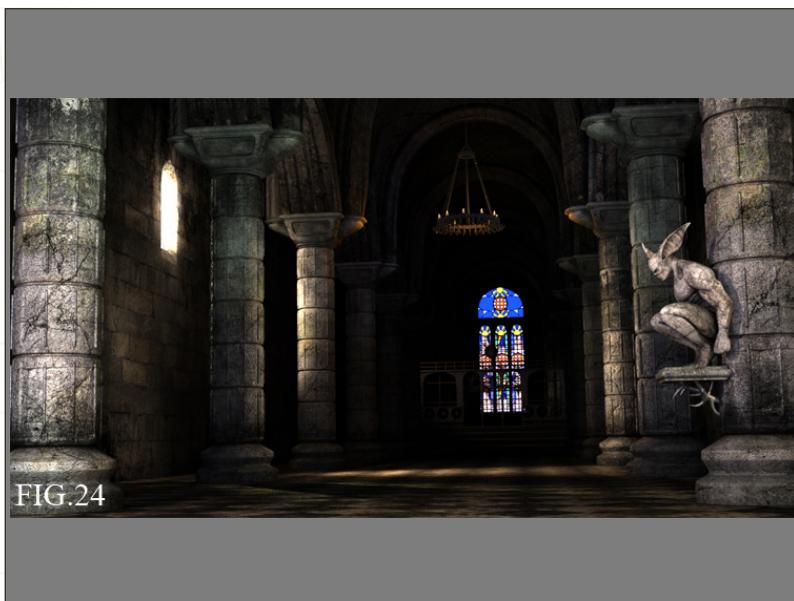

Fig.24

FIG.24

Final Colour – This is a combination of the Direct, Indirect and Specular Shading outputs (**Fig.24**). Please note that I only included the Diffuse Shading (Direct) and Diffuse Shading (Indirect) render passes to provide some extra control if wanted; in all likelihood, the Final Colour pass will be more than enough.

FOG

This one we will do a bit differently, since it is not available as a regular render output. Create a completely black material, with all specularity and reflections turned off and assign it to everything in the scene. I recommend that you save before doing this. Then go to the Base Shader in the Shader Tree and set Fog Type to Exponential. You will have to play around with the Fog Density to achieve the desired fog thickness; mine is set to 0.03%. You don't really have to worry about the Fog Colour, as that can easily be adjusted on the fly in Photoshop with Hue/Saturation and Colour Balance. Once you have the fog set up, press F9 to render it out and save it (**Fig.25**).
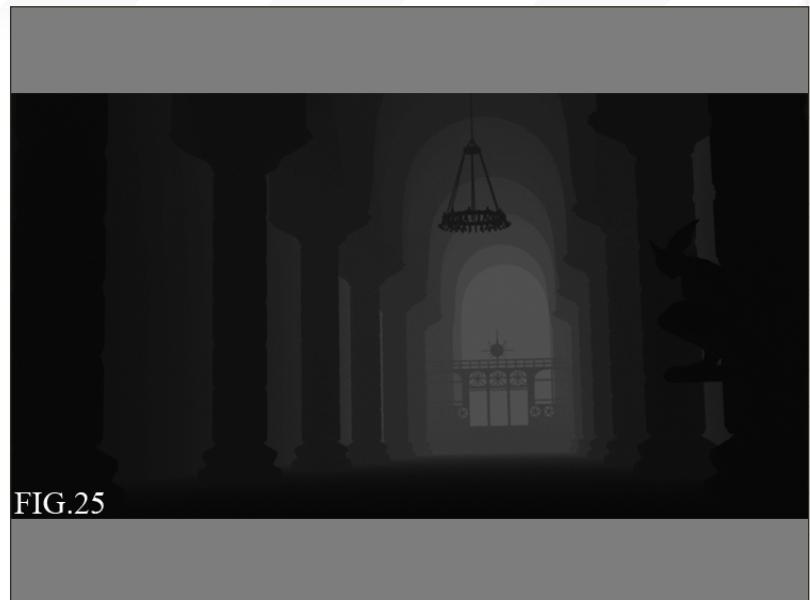
Fig.25

FIG.25

VOLUMETRIC LIGHT

Now what is this, you ask? Well, volumetric light can be described as light scattering as it hits tiny dust particles in the air, enabling you to see the actual light beam, like you often see with flashlights in movies (yes, you know what I mean). Unfortunately, volumetric light is something that is currently not supported in modo 302; however it is one of the new features in the upcoming modo 401. But that is not of much help to us right now, so we will have to "fake" it by hand instead, so render out an image with your Final Colour render output turned on, and open it up in Photoshop. Create a new layer and use the polygonal Lasso Tool to select a cone starting from the little side window and going down towards the highlight on the floor (**Fig.26**).
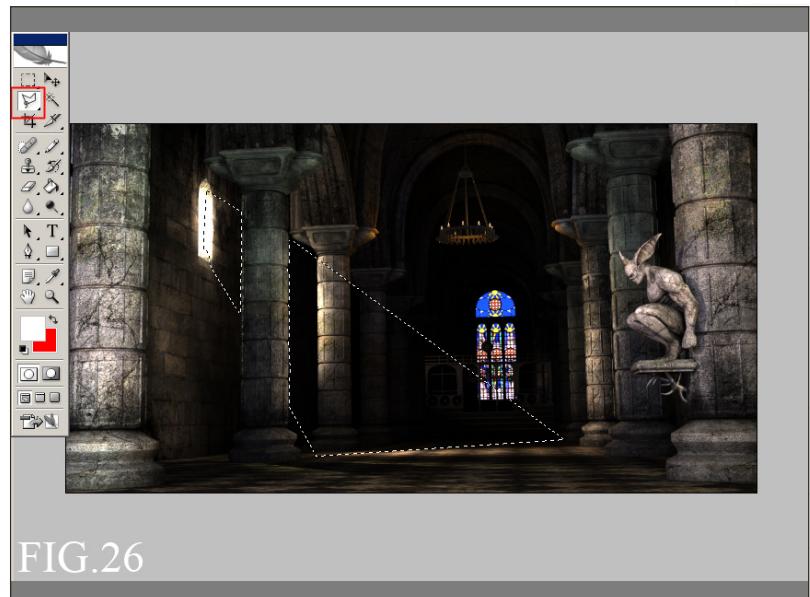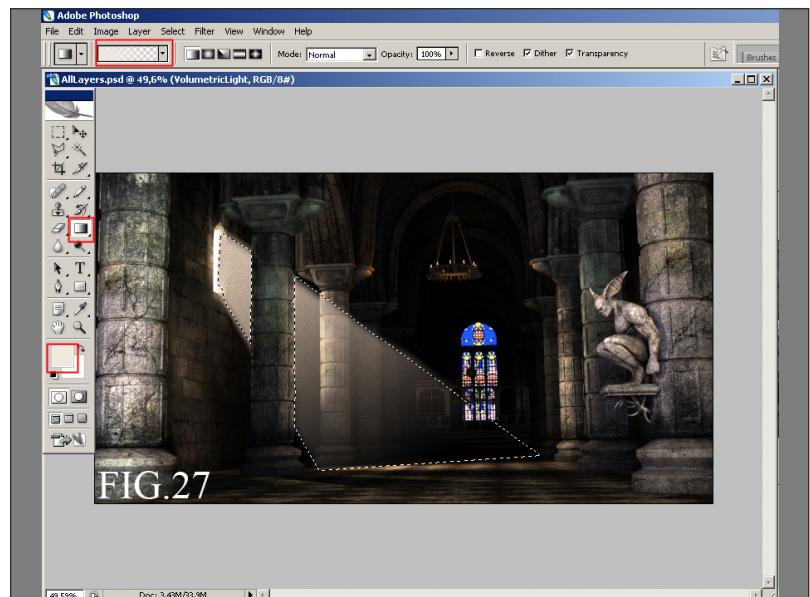
Sample the colour of the window and use the Gradient tool to create a gradient going from the window (opaque) to the floor (transparent) (**Fig.27**). Then remove your selection and start removing the hard edges with a soft eraser brush.
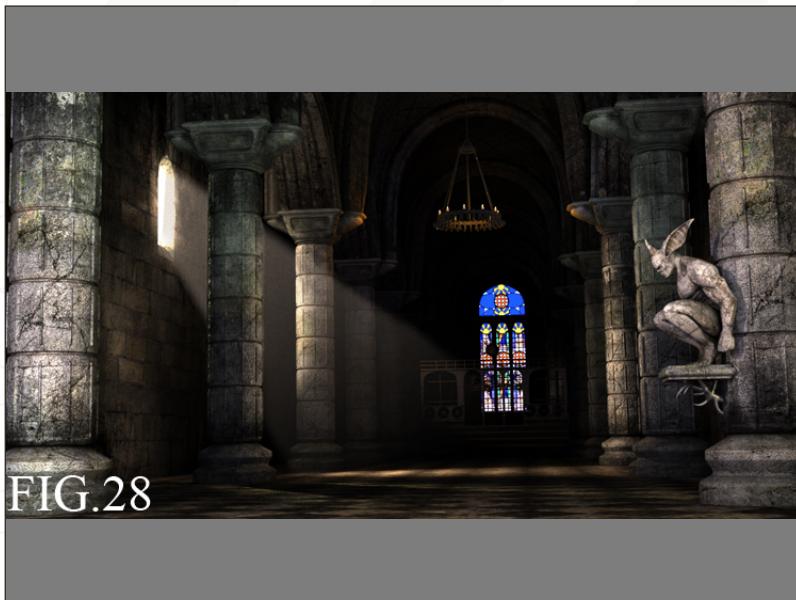
Fig.26

FIG.26

Fig.27

FIG.27

Fig.28

FIG.28

That's all there is to it really! If you're feeling brave, you can play around with blending modes and the opacity of the layer to achieve different results (**Fig.28**).
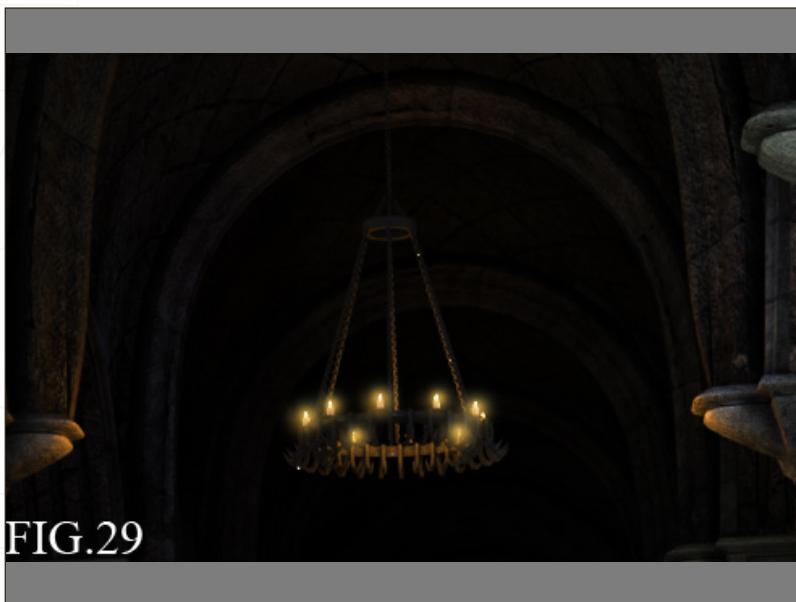
Fig.29

FIG.29

While we are at it, we can also create a separate layer with a bit of glow coming from the candles on the chandelier. Sample the colour of the candles and paint some semi transparent "blobs" around the candles with a soft brush (**Fig.29**).

Now that you have all the render passes, you can either play around with them yourself to see what you come up with, or, you can wait for the next part of the series where the post-production artist will put everything together in Photoshop. But this is it for me – thank you. Over and out!
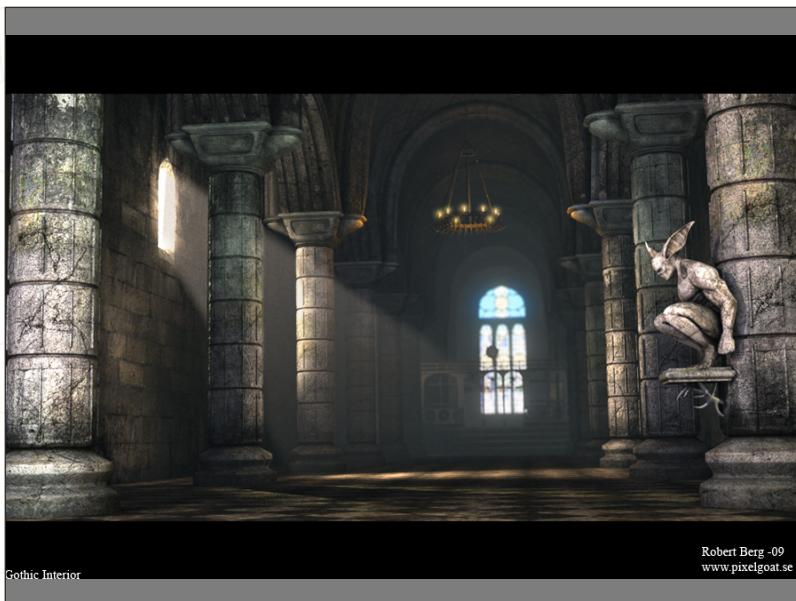
Fig.30

Gothic Interior
Robert Berg -09
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P.S. I couldn't help putting all the passes together myself (**Fig.30**).

GOTHIC CHURCH
INTERIOR CREATION
PART 4: LIGHTING & RENDERING

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